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"MOTHER EARTH, FATHER SKY"
SYMPOSIUM



National Aeronautics
and Space Administration

Educational Opportunities Program
Oregon State University

NASA SYMPOSIUM 1977

A FINAL REPORT
submitted to
NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION HEADQUARTERS
Washington, D.C.

NASA Scientific & Technical Information Facility
Baltimore, Maryland

by
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I.

ANALYSIS OF THE PROBLEM

A major problem encountered by minority students in the public school system is a lack of encouragement or motivation to continue their education beyond high school. Those students who do decide to go on are guided toward vocational training, education, social work, liberal arts, or sports. This is especially evident when one visits the schools as a college recruiter. For instance, one hears comments such as, "they aren't college material, therefore wouldn't be interested." There is a lack of awareness of opportunities both in career fields and in financial aids available to continue their education. The continuing myth that this particular group of people are best suited for vocational careers is indeed difficult to overcome. It will continue to be a deterring factor to many minority students as long as educators use statements such as the following to describe these students: (These comments are taken from actual letters of recommendation written by educators to the Educational Opportunities Program, recommending students for entrance to the University) "As an underclassman, X saw little value in acquiring an education. X is of minority background ... none of the children in his family have seemed to put much emphasis on school and learning. X apparently had problems keeping himself interested in the academic part of school." Second student example concerning a young Native American from a local reservation: (These quotes are from a counselor) "X is a very sensitive person and during

his high school years suffered from states of depression ... in the event that he is accepted at OSU he should be assigned a counselor who understands the various emotional problems of Native Americans. X is very 'Indian.'" Comments from another counselor - same student: "Goal mentioned is unrealistic." (This goal was to be a good writer. He had, at this time, written several poems which had been published locally and had started a novel which was well underway!) "Reasonable, but difficult to communicate with." One of his teachers: "X had a difficult time in high school. He was acutely aware of racial differences and often became rather despondent about it. I believe X has waged his battle with 'identity crisis' or whatever, and although still quiet, has formulated some goals. He still has a fear of failure..." When students come in contact with educators which exhibit these attitudes towards different cultures, color, or background, it is indeed difficult or impossible to contemplate a career as an aerospace engineer.

At an Indian Education Conference in Portland, Oregon, there was a discussion of these problems and of the difficulty in attracting minorities, especially Native Americans, to the fields of engineering and space. Mr. Jerry Elliott, of the Lyndon B. Johnson Space Center, Houston, Texas, pointed out that the National Aeronautics and Space Administration was attempting to attract minority students by sponsoring symposiums throughout the nation.

A science and engineering symposium appeared as a logical and unique way to present these areas of study to minority students and women as very real career possibilities. The idea was exciting, so a proposal was written and submitted to NASA by the author, and subsequently funded by NASA under a pre-negotiated contract.

On April 27th, and 28th, 1977, the Educational Opportunities Program (EOP) at Oregon State University (OSU), and the National Aeronautics and Space Administration (NASA) sponsored the symposium on Oregon State University's campus in Corvallis, Oregon. The purpose was to create an awareness among students of the opportunities available in the total realm of space (science, engineering, and supporting industries), and to encourage them to consider entering such fields. This total space concept prompted the title "Mother Earth, Father Sky," from the Native American's concept of the total environment. Because the number of women and minorities represented in such careers is small, a special effort was made to invite this segment of the Oregon student population, to attend the symposium.

The objectives of the symposium were first to create an awareness of opportunities and then to motivate more minority youths and women to select science and engineering as viable career choices, next to explore the question of how aerospace technology careers and aerospace activities can be made relevant to minorities and women, and finally to provide opportunities for minority aerospace scientists and engineers to interact with the minority community, particularly at the junior high, high school, and college levels. In addition to these objectives, we sought to stimulate a greater interest among minority professors and students in the NASA's research and development programs and help NASA's efforts to recruit more minorities and women into its work force.

II.

ORGANIZATION, PLANNING, IMPLEMENTATION

Initial Organization

On December 13 and 14, 1976, the initial planning session was held at Oregon State University. Attending this meeting was Mr. Roscoe Monroe, NASA Headquarters, Mr. Willie White and Mr. Garth Hull of the Ames Research Center, Mr. Jerry Elliott of Lyndon B. Johnson Space Center, advisory board members Mr. Solon Stone, School of Engineering, Mr. Olaf Boedtke, School of Science, Mr. Edward Condon, School of Oceanography, all of OSU, Mr. Richard Pizzo of the High School-College Relations Board, Ms. Miriam Orzech, Director of the Educational Opportunities Program, OSU, and the author. At this meeting Mr. White and the author were designated co-directors of the symposium. Possible NASA resources were listed and a tentative agenda was outlined. There were two more such meetings held, with the advisory board being expanded to include student representatives from the three ethnic student unions on campus.

On January 25, 1977, Ms. Judy Murray was hired as secretary and on January 31, 1977, Ms. Diane Clayton was hired as coordinator for the symposium. An office was established within the E.O. Program area and work began.

Physical Facilities

The Memorial Union, located on the Oregon State University campus in Corvallis, Oregon, was selected as the symposium site. It had been decided at the initial sessions in December that small group sessions, along with a limited number of large group sessions, would be the most

beneficial to students. Therefore, access to a building with many small rooms was necessary. The Memorial Union was the only building available offering the necessary small rooms plus the large ballroom for exhibits and large sessions. By having the entire program in one building, it was easier to facilitate the movement of students to the various small-group sessions.

The largest or Main Ballroom was divided into two sections. Approximately one half was set up for general/large groups and the remaining one half for NASA and contracting agencies' exhibits. A series of partitions were used to divide the ballroom in an attempt to control the noise factor associated with people viewing the exhibits. A small section of the ballroom was set aside for souvenir photographs to be taken of the students. Seating capacity of one-half of this large room was approximately three hundred fifty. See the Appendix for a copy of the floor plan. Folding chairs were placed in rows across the room facing the stage, from which the techno-drama, large and general sessions were presented. Additional space was available along one side of the room and had to be utilized the second day of the program to accommodate additional participants.

The other area of the Main Ballroom was used for the distribution of box lunches, and, at the end of the day, for distributing complimentary NASA pamphlets to interested students and teachers.

Two smaller ballrooms, located to the side and on the same floor as the Main Ballroom, were utilized for small group sessions throughout the day. In one ballroom a video-monitor, along with a tele-lecture telephone featured NASA-Ames Research Center presenters. The other ballroom contained OSU and contractor personnel who were available to

discuss educational and career opportunities with their institutions or organizations. During the lunch break, a special working lunch was held for teachers in the ballroom set-up for the tele-lectures. Box lunches were prepared by the University Food Service and served in the Main Ballroom to student participants. Teachers were served in one of the smaller ballrooms. University students in the Educational Opportunities Program assisted in the lunch distribution.

Rooms utilized for small group sessions were located on the first and second floors of the Memorial Union. Maps of the floor plan were put in several places in the building to assist students in locating rooms. Floor plans are included in the Appendix.

A banquet was held for all university faculty and administrators, industrial representatives, NASA officials, and EOP staff and students who had assisted with the symposium, Thursday evening, 6-9 pm, April 28, 1977. "The Forum," a new dining facility on campus was reserved for this occasion. The buffett dinner was catered by the University Food Service. Approximately 60 people were in attendance. The program included entertainment by Mr. Roderick Lightner and Mr. Billy Bester, EOP students, MAYA, a Chicano dance group, and a featured speaker, Dr. Hans Mark, Director, Ames Research Center.

Program

Techno-drama

A techno-drama was presented immediately prior to the break-up for the small group sessions. The drama was well received by both students and staff and set the mood for the day. The dramatic presentation, or techno-drama, was unique to this symposium. It was written and directed

by Ms. Nichelle Nichols and Ms. Shirley Keith of Women In Motion, Inc., from Los Angeles, California. The cast consisted of ten students, all minorities, from Talent Search, Inc. in Los Angeles.

Program Presenters

A total of forty-seven people representing NASA, OSU, and private industry, served in the capacity of program presenters. A list of these presenters and the titles of their presentations are included in the Appendix. Industries represented were Rockwell International, Hewlett-Packard Corporation, Boeing Company, Bonneville Power Administration, Pacific Northwest Bell, and Georgia Pacific Corporation. Oregon State University's Oceanography, Chemistry, Biochemistry, Microbiology, Statistics, Educational Opportunities Program, and the Environmental Remote Sensing Applications Laboratory Departments provided staff members for program presentations. NASA was represented by staff from Washington Headquarters, Lyndon B. Johnson Space Center, Goddard Space Flight Center, Dryden Flight Research Center, Jet Propulsion Laboratory, and Ames Research Center. Copies of correspondence sent to all of these presenters can be found in the Appendix.

Program Content

The program content included a variety of career information presentations in science and engineering. The schedule was designed to provide for both large group presentations and small group (ten to twenty) presentations of twenty minutes duration. Based on results of previous space symposiums, a decision was made to devote the major part of the program to small group presentations in order to provide an opportunity

for students to personally interact with program presenters. It was felt that large group presentations were too imposing to encourage individual students to ask questions of presenters. Large group presentations offered an opportunity for some group cohesiveness and also provided a method of including several program features that could not be accommodated utilizing the small group, twenty-minute format.

The schedule and program for both days were essentially the same. Two large group presentations and several small group presentations were included. There were eighteen different small group presentations. These were repeated several times throughout the day, both days. Students had the opportunity to attend several of these, based on their career interest areas. A copy of the program is located in the Appendix.

During the lunch hour, teachers attended a special working lunch in one of the small ballrooms. Teacher packets containing educational information and materials were given to those teachers who attended. Additionally, this time gave teachers an opportunity to interact with NASA/OSU personnel.

Each day ended with the entire group of students and teachers returning to the Main Ballroom for closing announcements and to complete program evaluation forms that were distributed at that time.

Displays and exhibits remained open until 4:00 pm. Buses departed from the parking area at approximately 4:00 pm.

Wednesday evening from 7-8 pm, April 27, a portion of the program, presented earlier in the day, was made available to the community. Following the program, displays and exhibits remained open until 9 pm, to allow people to browse.

Arrangements for Participants

Initial Contact

Students from selected schools throughout the state of Oregon, were invited to come to the symposium. The selection of schools invited to participate was based on the numbers of minority students who attended that school. The yearly census of the Oregon State Board of Education and personal knowledge gained from recruiting visits were used as a basis for locating areas where there is a large minority representation. The junior high students invited to attend were from schools within a two hour driving time from Oregon State University, while senior high students from widely scattered areas of Oregon were asked to come. Maps included in the Appendix show areas where large numbers of minority students attend school. Several letters were sent to participating schools. These letters contained information regarding registration, transportation, lodging and meal arrangements for students and teachers planning to attend the conference. Samples of these letters are included in the Appendix. Additionally, students and staff from all community colleges and universities in Oregon were sent letters of invitation. Community organizations who have special interests in furthering opportunities in higher education for minorities in the Northwest were sent invitational letters. A list of these organizations can be found in the Appendix.

Twenty-six of the forty-four school districts invited, sent participants to the symposium. In all, thirty-eight junior high schools and thirty-six senior high schools were represented. Several other junior and senior high schools not included on the original list of invited schools, also sent students and teachers to the conference. Some of the schools on the original invitation list, declined to participate. In a

few cases, the amount of time and travel distance involved were given as a reason for not wanting to send students. In other instances, school officials felt that the amount of student interest in this type of program was not sufficient to warrant the school's involvement. Finally, some school superintendents and principals declined to respond to the invitational letter or to follow-up phone calls.

The total number of junior high students in attendance was approximately three hundred seventy-four. High school student attendance numbered four hundred fifty-six. During the two-day conference, over seventy teacher/counselors participated. The Appendix includes a mailing list and samples of correspondence sent to the various participants.

Transportation

In the first letter sent to participating districts, it was stated that the symposium coordinator would arrange transportation. Due to various constraints, this did not prove to be feasible. Many school districts are not conveniently served by commercial charter bus companies, due to their location away from heavily populated areas. Therefore, in all but the largest districts, schools arranged their own transportation and billed the OSU/NASA Symposium. In the larger districts, commercial charter buses were used to transport students and teachers to OSU. A letter containing a list of schools, numbers of participants to be picked up, and designated pick-up points, was mailed to the bus companies. Bus companies decided on realistic pick-up times that would allow students to arrive in time for registration at 8:30 am.

Lodging

Because some of the schools participating in the conference are located quite some distance from OSU, it was necessary for students and teachers from those schools to stay overnight. A decision was made to have participants stay in campus residence halls. A list of the numbers of students and teachers from each school who would need overnight accommodations was compiled. The Assistant Director of Student Housing at OSU furnished information concerning available space and assisted in the coordination of arrangements with the various residence halls. Due to the fact that available space was limited, and certain halls are limited to one sex, it was not possible to have all students and teachers from one school stay in the same residence hall. This created some concern among teachers about responsibility for student supervision. No overt problems developed in this respect.

Meals

Box lunches, catered by the University Food Service were provided for all participants and presenters. It was necessary to notify the Food Service several days in advance regarding the expected number of people who would be served lunch. A closer count was given twenty-four hours prior to the symposium opening. Due to "no-shows" and a large number of last-minute registrants, it was difficult to predict the number of lunches needed with complete accuracy.

Dinner and breakfast for those students and teachers staying overnight were available at one of the residence halls on campus. Previous arrangements were made with the Assistant Director of Food Service for Housing. Meal tickets were provided for participants to present to the

cashier at the residence hall. The symposium was then billed for these meals.

Registration

Individual registration forms for each student who would be attending the symposium were mailed to participating schools, along with a list of goals for the symposium and a list of guidelines for selecting student participants. Students who were selected by their school to attend the conference, completed the registration form by filling in their names, school, and school district, and ranking the career areas, according to their interests. These completed forms were then returned to us and were used as the basis for scheduling students into small group presentations.

When scheduling students, several contingencies had to be considered:

- * Some of the rooms being used for small group presentations were smaller than others.
- * The presentations were divided into four categories; Biological Sciences, Environmental and Physical Sciences, Aerospace Science and Engineering, and Engineering and Computer Science. The number of presenters in each area varied, and student selection was not evenly dispersed among these four areas.
- * During four of the six or seven time periods allotted for small group sessions each day, one-half of the students were to be scheduled into a two-period time block for a special presentation by Clarice Lolich, Space Science Lecturer, Ames Research Center. Therefore,

during these time periods, the number of students attending the small group sessions was reduced to one-half of the total in attendance.

* A student could not be scheduled into the same small group session twice.

In order to schedule students and teachers, and allow for all these contingencies, a plan for scheduling was devised. A copy can be found in the Appendix. After participants were scheduled, a book of tickets was prepared for each. Each ticket listed a small group session number and a room number for that session. A ticket for lunch and for a souvenir photograph were also included. The intent was that presenters would tear off a ticket for each student who attended his/her presentation. The rationale for this method was to give students a schedule to follow, get an accurate count of attendance, prevent overcrowding in the smaller rooms, and expedite the traffic flow. Many presenters did not collect tickets and some participants did not follow their schedule. Therefore, the usefulness of this idea was not fully tested.

Publicity

An attempt to initiate publicity for the symposium was made in early March. However, the Oregon State University publication, "The Oregon Stater," was the only one which printed the article. Publications, newspapers, and television stations were contacted to determine their reasons for not publicizing the event. The reason given for the lack of response was that it was too soon to publicize at that time, but that they would be interested at a later time closer to the symposium date.

Due to the amount of time and effort required for adequate publicity

within the four week time limit imposed by the media, a decision was made to accept the volunteer services of Ms. Connie Fullerton as publicity agent. Ms. Fullerton has previous experience in this field within the state and was instrumental in obtaining the cooperation and excellent coverage the symposium received from the newspapers and television stations. Newspaper and television interviews, both live and taped, were arranged. Visits by Nichelle Nichols to the schools and a community college were also scheduled. It is important to emphasize the importance good publicity coverage plays in the success of a symposium such as this. Although the facilities and the limited duration of the symposium imposed a limit on the number of participants, personal communication since the symposium indicates that at least twice as many students were anxious to participate. The author feels that this is a result of good publicity coverage. Moreover, the unexpected public response to the evening session proves that an informed public will respond.

Ms. Fullerton is to be commended for the excellent coverage received in the short period of time in which she had to do the job.

Security Arrangements and Liability Insurance

Due to the nature of the physical facilities available for the displays and exhibits it was necessary to make arrangements for security, both during the day and in the evening. The security staff of the Memorial Union is on duty from 7:00 am until 11:00 pm. During this time an hourly check was made by that person. A special security guard was hired for 11:00 pm to 7:00 am, from the University Campus Security Office.

Contractual agreements with NASA required provision to be made for a uniformed person to be on duty during the hours the moon rock was on

display. The Army ROTC supplied volunteers for this purpose. While not on display the moon rock was locked in the Memorial Union vault.

It was also stated in the contract that all exhibits on loan from NASA had to be covered by insurance. The insurance regularly carried by OSU was found to be sufficient for this purpose.

Audio-Visual Equipment

The invitational letter to the eighteen presenters asked that they dramatically present information about careers to the students who came to their presentations. Therefore, almost all of the presenters requested us to make various pieces of audio-visual equipment available to them. The audio-visual department on campus, IRAM, was contacted to make arrangements to rent this equipment. A copy of the audio-visual needs is included in the Appendix. The audio-visual department was supplied with a copy of the program and room numbers where equipment was to be delivered. A trouble-shooter was also hired to be on duty all day, both days, to be available, if needed, in the event of equipment breakdown. Because some of the rooms used for small group presentations could not be reserved overnight, much of the audio-visual equipment had to be stored in one or two rooms in the Memorial Union. Following the conclusion of the symposium on Thursday, the audio-visual staff collected and returned all of the equipment to their department. With the exception of some equipment breakdowns and last minute requests for equipment by presenters, audio-visual arrangements went smoothly.

III.

EVALUATION

There were seventy adults (teachers, counselors, parents, etc.) attending the symposium, with 67 per cent completing the evaluation form. Of that 67 per cent, 32 per cent were male, junior high teachers; 23 per cent were male, senior high teachers; 15 per cent were female, junior high teachers; 13 per cent were female, senior high associated adults; 9 per cent were junior high teachers with sex undesignated; and the same 9 per cent in this category for the senior high teachers.

With reference to the junior high teachers, we observed that only approximately one third of those completing the evaluation form were women.

For easy reference, the author has included the statistical data in the format on the following page. For an understanding of the questions presented to the participants, please see the Evaluation Form in the Appendix.

As you will note, both male and female junior high teachers evaluated the dramatic presentation, on the whole, as favorable.

From the results of the evaluations, one can conclude that the junior high teachers were more impressed favorably than unfavorably with the symposium presentations. The small and large groups were most favorably evaluated. One reason the large group, "Easily Understood" section was rated below average may be due to the noise factor, since these were held in the Main Ballroom where the exhibits were on display.

Table I
JUNIOR HIGH TEACHER/COUNSELORS

Legend: Hg - High Rating Av - Average Rating Lw - Low Rating NC - No Comment

All figures represent percents

On the following chart the questions are abbreviated for utility. Please see the Evaluation Form in the Appendix for the unabridged questions.

Total represents rating percentage of total response in each category

-17-

SESSION	MALE				FEMALE				UNDESIGNATED				TOTAL			
	Hg	Av	Lw	NC	Hg	Av	Lw	NC	Hg	Av	Lw	NC	Hg	Av	Lw	NC
Dramatic Presentation:																
Informative	40	27	13	20	43	28.5	28.5	-	25	25	25	25	39	27	19	15
Interesting	53	20	7	20	72	-	14	14	75	-	25	-	62	12	12	14
Easily Understood	33	27	20	20	43	43	-	14	100	-	-	-	46	27	12	15
Questions	13	13	47	27	29	-	14	57	-	-	75	25	15	8	42	35
Enter Science Career	20	20	27	33	-	14	14	72	-	25	25	50	12	19	23	46
Displays and Exhibits:																
Informative	40	33	-	27	44	29	14	14	50	50	-	-	42	35	4	19
Interesting	33	33	7	27	43	43	-	14	50	50	-	-	38	39	4	19
Easily Understood	20	40	13	27	14	72	-	14	25	75	-	-	19	54	8	19
Questions	33	20	20	27	17	33	13	17	-	25	75	-	24	24	32	20
Enter Science Career	27	33	7	33	-	43	-	57	-	25	25	50	15	35	8	42

(Junior High Teacher/Counselors, Continued)

Table I

SESSION	Hq	MALE			NC	Hq	FEMALE			NC	Hq	UNDESIGNATED			NC	Hq	TOTAL			NC
		Av	Lw				Av	Lw				Av	Lw				Av	Lw		
Small Group Presentations:																				
Informative	53	7	13	27		72	14	-	14		25	75	-	-		54	19	8	19	
Interesting	40	20	13	27		62.5	12.5	12.5	12.5		50	25	25	-		47	19	15	19	
Easily Understood	40	20	13	27		57	14	-	29		25	50	25	-		42	23	12	23	
Questions	47	20	02	13		43	14	29	14		75	25	-	-		49	18	22	11	
Enter Science Career	33	13	27	27		14	-	14	72		25	25	-	50		27	12	19	42	
Large Group Presentations:																				
Informative	47	20	27	7		75	-	12.5	12.5		50	50	-	-		55	19	19	7	
Interesting	27	47	13	13		58	14	14	14		25	50	25	-		35	38	15	12	
Easily Understood	20	27	47	13		57	-	29	14		25	50	25	-		30	22	37	11	
Questions	40	20	27	13		29	14	43	14		-	-	75	25		31	15	39	15	
Enter Science Career	20	20	40	20		14	-	29	57		-	25	25	50		15	15	35	35	

There were three hundred seventy-four junior high students, of which 46 per cent completed the evaluation form. Fifty-eight per cent were female and 42 per cent were male.

The sessions were rated by the 46 per cent as follows:

Dramatic presentation - superior

Exhibits - superior

Small group sessions - superior

Large group sessions - superior

From these statistics one can conclude that those attending the first day viewed the symposium as successful.

We also asked the students to respond to the following: "Do you plan to attend college?" Eighty nine per cent said yes - 94 per cent of the males and 85 per cent of the females. In response to the question, "Did the symposium make you consider science as a career?", 89 per cent of the males and 69 per cent of the females said, "Yes." When asked if they would recommend that other people attend a symposium of this type, 94 per cent of both the males and females said, "Yes."

A chart detailing the statistics for the junior high evaluations is on the following page.

Table II
JUNIOR HIGH STUDENTS

Legend: Hg - High Rating Av - Average Rating
Lw - Low Rating NC - No Comment

All figures represent percents.

On the following chart the questions are abbreviated for utility. Please see the Evaluation Form in the Appendix for the unabridged questions.

Total represents rating percentage of total response in each category

<u>SESSION</u>	<u>MALE</u>				<u>FEMALE</u>				<u>TOTAL</u>			
	<u>Hg</u>	<u>Av</u>	<u>Lw</u>	<u>NC</u>	<u>Hg</u>	<u>Av</u>	<u>Lw</u>	<u>NC</u>	<u>Hg</u>	<u>Av</u>	<u>Lw</u>	<u>NC</u>
Dramatic Presentation:												
Informative	53	35	4	8	72	19	3	7	64	26	3	8
Interesting	67	19	6	8	82	13	1	5	76	16	3	6
Easily Understood	58	28	6	8	66	24	4	8	63	26	5	8
Questions	31	25	33	11	32	31	26	11	31	28	29	11
Enter Science Career	35	31	25	10	36	46	1	9	35	40	16	9
Displays and Exhibits:												
Informative	69	24	1	8	62	26	7	5	65	25	5	6
Interesting	75	13	6	7	51	26	8	6	66	20	7	6
Easily Understood	50	38	4	8	54	37	5	5	52	37	5	6
Questions	40	29	21	10	35	34	23	8	37	32	22	9
Enter Science Career	38	43	11	8	25	47	23	6	30	45	18	7
Small Group Presentations:												
Informative	61	29	3	7	69	19	7	6	66	23	5	6
Interesting	54	31	7	8	44	45	9	3	48	39	8	5
Easily Understood	54	31	7	8	50	32	13	6	52	31	10	7
Questions	54	31	7	8	60	27	7	6	58	28	7	7
Enter Science Career	39	44	7	10	36	42	17	6	36	43	13	8
Large Group Presentations:												
Informative	64	21	7	8	65	23	10	5	65	22	9	6
Interesting	43	38	12	7	45	33	19	4	44	35	16	5
Easily Understood	47	36	8	8	38	46	10	6	42	42	9	7
Questions	46	25	19	10	35	36	21	6	40	31	20	8
Enter Science Career	33	42	17	10	27	45	24	6	30	44	21	8

Table III
JUNIOR HIGH STUDENTS

All figures represent percents.

	<u>YES - MALE</u>	<u>YES - FEMALE</u>	<u>YES - TOTAL</u>
1. Do you plan to attend college?	94	85	89
2. Have you decided on your career?	43	41	42
3. Did this symposium make you consider science or engineering as a career?	89	69	77
4. Would you attend a similar confer- ence in the future?	96	90	92
5. Would you recommend that others attend this type of symposium?	94	94	94
6. Do you think the goal of attracting minority and women students into science and engineering careers was accomplished?	85	86	85

Forty-five per cent of the teachers/adults who completed the evaluation forms, accompanied high school groups to the symposium. Of this number, 65 per cent were male and 35 per cent were female. Here they rated the dramatic presentation in the mid-range; displays as superior; small group sessions as superior; and the large group sessions rated at the mid-point.

A chart outlining statistics from this segment of the participants evaluation forms is on the following page.

Table IV

SENIOR HIGH ADULTS (Parents, teachers, counselors, etc.)

Legend: Hg - High Rating Av - Average Rating Lw - Low Rating NC - No Comment

All figures represent percents

On the following chart the questions are abbreviated for utility. Please see the Evaluation Form in the Appendix for the unabridged questions.

Total represents rating percentage of total response in each category

SESSION	MALE				FEMALE				UNDESIGNATED				TOTAL			
	Hg	Av	Lw	NC	Hg	Av	Lw	NC	Hg	Av	Lw	NC	Hg	Av	Lw	NC
Dramatic Presentation:																
Informative	18	64	18	-	50	33	-	17	-	-	75	25	24	43	24	9
Interesting	27	45	26	-	67	17	-	17	25	50	25	-	38	38	19	5
Easily Understood	18	64	18	-	33	33	33	-	50	25	25	-	28	48	24	-
Questions	27	-	55	18	-	-	83	17	-	-	50	50	14	-	62	24
Enter Science Career	-	36	27	36	-	17	17	67	-	25	25	50	-	28	24	48
Displays and Exhibits:																
Informative	45	45	9	-	67	17	-	17	-	100	-	-	43	47	5	5
Interesting	64	36	-	-	83	-	-	17	25	75	-	-	62	33	-	5
Easily Understood	36	64	-	-	67	17	-	17	-	60	40	-	38	28	34	-
Questions	36	27	18	18	33	-	50	17	25	-	50	25	19	19	9	53
Enter Science Career	36	18	9	36	-	17	17	67	-	25	-	75	19	19	9	53

Table IV

(Senior High Adults, Continued)

SESSION	Hq	MALE			NC	Hq	FEMALE			NC	UNDESIGNATED				Hq	TOTAL			NC
		Av	Lw				Av	Lw			Hq	Av	Lw			Av	Lw		
Small Group Presentations:																			
Informative	64	18	18	-		50	33	-	17		75	25	-	-		62	24	9	5
Interesting	73	27	-	-		67	17	-	17		50	50	-	-		67	28	-	5
Easily Understood	82	18	-	-		67	17	-	17		50	50	-	-		71	24	-	5
Questions	64	36	-	-		50	33	-	17		100	-	-	-		67	28	-	5
Enter Science Career	36	18	9	36		-	17	17	67		-	25	-	75		19	19	9	53
Large Group Presentations:																			
Informative	27	64	9	-		50	33	-	17		-	75	25	-		28	57	9	5
Interesting	27	64	9	-		50	33	-	17		-	100	-	-		28	62	5	5
Easily Understood	27	36	36	-		33	33	17	17		-	75	25	-		24	43	28	5
Questions	36	45	9	9		17	17	50	17		-	25	50	26		24	33	28	17
Enter Science Career	18	27	18	36		-	17	17	67		-	25	-	75		9	24	14	53

There were four hundred fifty-six high school students attending, of which 30 per cent completed the evaluation form. Of this number 38 per cent were male and 62 per cent were female. Again we see a positive rating for the symposium. Only two of the areas received a low rating. These were the "Many Opportunities for Questions" and "Made me want to enter a science career" sections concerning the dramatic presentation.

On the questions "Do you plan to attend college?", 88 per cent of the males and 98 per cent of the females said, "Yes." When asked if the symposium made them consider a science career, 65 per cent of the males and 77 per cent of the females said, "Yes." Ninety-four per cent of both the males and the females said they would recommend that others attend this type of symposium.

A chart detailing the statistics taken from the high school student evaluation forms follows.

Table V
SENIOR HIGH STUDENTS

Legend: Hg - High Rating Av - Average Rating
Lw - Low Rating NC - No Comment

All figures represent percents.

On the following chart the questions are abbreviated for utility. Please see the Evaluation Form in the Appendix for the unabridged questions.

Total represents rating percentage of total response in each category

<u>SESSION</u>	<u>Hg</u>	<u>Av</u>	<u>Lw</u>	<u>NC</u>	<u>Hg</u>	<u>Av</u>	<u>Lw</u>	<u>NC</u>	<u>Hg</u>	<u>Av</u>	<u>Lw</u>	<u>NC</u>
Dramatic Presentation:												
Informative	42	38	15	2	45	41	8	6	44	40	11	4
Interesting	58	33	6	2	66	23	7	3	63	27	7	3
Easily Understood	71	27	2	-	62	24	12	1	65	25	8	1
Questions	33	23	38	6	23	28	35	12	27	26	36	9
Enter Science Career	25	35	31	10	24	44	23	9	25	41	26	9
Displays and Exhibits:												
Informative	69	23	4	2	62	34	2	2	64	30	3	2
Interesting	67	25	2	4	60	31	6	2	63	29	4	3
Easily Understood	67	29	2	2	56	41	3	2	60	36	3	2
Questions	46	19	23	10	36	35	20	6	40	29	21	7
Enter Science Career	33	46	12	6	27	51	15	6	29	49	14	6
Small Group Presentations:												
Informative	62	29	8	2	74	20	3	2	70	23	5	2
Interesting	58	35	4	2	67	24	6	2	64	28	5	2
Easily Understood	65	29	6	-	66	29	2	2	66	29	4	1
Questions	71	17	8	4	62	27	6	6	65	23	7	5
Enter Science Career	50	37	8	6	44	36	13	7	46	36	11	7
Large Group Presentations:												
Informative	62	27	10	2	53	38	8	1	57	34	9	1
Interesting	58	27	17	-	41	44	13	2	47	38	14	1
Easily Understood	60	27	12	2	47	42	8	2	51	36	9	2
Questions	46	23	25	6	36	45	13	5	40	37	17	5
Enter Science Career	33	44	15	8	24	53	14	7	28	50	14	7

Table IV
SENIOR HIGH STUDENTS

All figures represent percents.

	<u>YES - MALE</u>	<u>YES - FEMALE</u>	<u>YES - TOTAL</u>
1. Do you plan to attend college?	88	98	94
2. Have you decided on your career?	56	53	54
3. Did this symposium make you consider science or engineering as a career?	65	77	72
4. Would you attend a similar confer- ence in the future?	88	87	87
5. Would you recommend that others attend this type of symposium?	94	94	94
6. Do you think the goal of attracting minority and women students into science and engineering careers was accomplished?	85	91	88

SUMMARY

The goal of the symposium was to have eight hundred participants attend during the two-day period. Student and teacher participation was approximately nine hundred. Therefore, the goal was surpassed. This figure does not include the students or instructors/administrators from the community colleges or universities; nor does it include the attendance at the evening session.

The purpose of the symposium was to create an awareness among students of the opportunities available in the total realm of space careers and encourage them to enter such fields. Based on the attendance, and comments on the evaluation forms, one could assume the purpose was also fulfilled. Because participants were not asked to indicate their ethnicity on the evaluation forms, we are unable to determine how many minority students did complete the form. Therefore, no direct statement can be made as to the motivation of minority students toward obtaining further education. Results of the survey show that 91 per cent of all students completing the form do plan to attend college. Only 37 per cent of the eight hundred thirty student in attendance completed the evaluation.

The comments made by the teachers attending this symposium and completing the evaluation form, seem to indicate a lack of concern for minority and women students as well as a critical need for more such programs. They assume that this group of students are: 1) not interested in education, 2) have no goals toward science, 3) do not have the scholastic ability, and 4) would probably not even be enthusiastic toward a career in science and engineering. This reinforces the statement that a major

problem faced by the minority and women students is the lack of encouragement or motivation to continue their education. Motivation for these students toward careers in science has been spotty at best.

The authors greatest concern now is that the interest generated by the symposium be maintained and expanded. If neglected, then all the time, effort, and personal commitment which was put into the symposium by so many will be lost. A symposium is an excellent starting place from which to broaden the existing narrow path between minorities and women and the science career world. There have been a number of women and varying numbers of minority representatives who have successfully pioneered in the fields of science and engineering. Under the proper circumstances, these representatives could provide motivation and hope to those students as yet undecided or pessimistic about their chances for careers in these fields.

The effort to change teacher and administrator attitudes toward ethnic minority students with respect to their educational and career potential must be intensified. This change will need to be at the community as well as state and national level. Active community parent committees working with the local school district would be the motivating agent at the local level, encouraging teachers and providing information whenever possible. Those committees presently functioning in the state of Oregon are improving the teacher awareness of the educational potential of minority students. Where these committees do not exist they should be established. Next would be the school districts with the science specialists or curriculum specialists initiating programs to build interest toward these careers.

Mini-symposia would be an excellent means for getting information

to both teachers and students. These would be small, localized programs dealing with science and engineering and providing methods and materials for the teachers and administrators, as well as a program of information and materials for students. These could be held in conjunction with school career days. Another method would be to organize field trips to various businesses and to provide work-study experiences in the science-engineering career fields.

At the state level there should be representation by the minority community on the various state boards of education. (e.g., textbook, curriculum, and teacher certification) Before certification is granted, a teacher should demonstrate to a chosen panel at the university and/or state level, an awareness of ethnic minority educational potential. This demonstration before a chosen panel would necessitate the completion of classes and/or practiums dealing with this topic in a real sense. This panel could be composed of minority educators, appropriate education department faculty, and a member of the State Department of Education. This panel would convene periodically to review prospective teachers before they graduate or receive certification.

A national symposium should be held and directed toward the State Boards of Education of the states. The purpose of such a program would be to acquaint them with the inovative educational programs which are in operation and which could be utilized by their home states. These programs should increase minority student matriculation. There should also be ways of involving the minority community at the state level which would enhance the state educational system. Ways to do this are already being proposed by some of the communities.

The Educational Opportunities Program at Oregon State University agreed to provide the following services to carry out the symposium:

1. Provide overall planning and supervision of implementation of the project
2. Provide the site (Memorial Union)
3. Handle all necessary correspondence
4. Coordination and logistics
5. Contact and recruit symposium participants
6. Act as a clearinghouse for all arrangements
7. Develop program for the symposium
8. Make travel arrangements for all program participants
9. Coordinate with NASA for specific speakers and exhibits
10. Make all media contacts
11. Compose, print and mail final evaluation report

The author refers the reader to the body of this report to confirm Oregon State University's fulfillment of these obligations.

Based on verbal and written comments, the author considers this symposium a success.

RECOMMENDATIONS

The following recommendations are made to guide those who may contemplate hosting future symposia.

Initiating School Contacts and Follow-up

1. Continued efforts should be made to change teacher and administrator attitudes toward ethnic minority students with respect to their educational and career potential. If such efforts are not continued and intensified, both formally and informally, both students and society will be the losers.
2. A planned strategy should be utilized within the individual schools and communities, prior to the symposium, to inform people about the goal of encouraging more women and minorities to consider science and/or engineering as viable career options. Additionally some specific follow-up measures must be taken in the schools to reinforce the message presented at the symposium. Examples of follow-up measures are one-to-one counseling, school career days, field trips to various businesses, work-study opportunities in the science field, and the selection of students to serve as teacher assistants in science classrooms with a special effort made to include minority and women students.
3. Participating schools should be required to send one or more teachers or counselors to the symposium to accompany those students who attend. Ideally these teachers/counselors should be willing, interested, and unprejudiced participants.

Planning

1. Directing and coordinating an event of this size and nature requires the assistance of many people. Members of the planning committee should each have a specific area of responsibility that will be accomplished according to a specific time-line. It would be most helpful to include school district science and curriculum coordinators on the planning committee. They can assist with recruiting students and transportation arrangements, in addition to other tasks. Regular, periodic meetings should be held with the planning committee to discuss progress and problems. Committee work should begin at least six months in advance of the symposium. All necessary arrangements should be completed no later than one week before the conference, to allow time to deal with last-minute problems that inevitably develop.

2. As mentioned in earlier reports, it is advisable to work closely with the staff of the host institution. The administrators should be made aware of the magnitude of the conference and the amount of monies available to finance the symposium. Almost every service or use of needed equipment will cost money. Try to arrange for donations and volunteer help whenever possible.

3. A symposium should be scheduled well in advance and placed on the university calender so it will not conflict with other major events being held on campus or in the local community.

Recruitment of Conference Participants

Prologue

In the initial contact with school superintendents, a general explanation was given concerning the goals of the symposium, the dates, and

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transportation arrangements. Superintendents were requested to send to
us the names of appropriate contact people from the selected schools
within their district. In several instances this initial information to
the superintendents was not forwarded to the person they had designated
as a contact. Therefore, the contact person, who in most cases was the
school principal, did not have complete information concerning the dates
for junior and senior high participation. This required many additional
phone calls and letters to clarify the arrangements.

The second letter to contact people at the various schools included
a list of the goals of the symposium, student selection guidelines,
individual registration forms for selected students, and a form on
which to list the names of participants who would be coming to the
conference. These items can be found in the Appendix. As funds and
space for the symposium were limited, only eight hundred students could
be invited. Each school was allotted a definite number of student spaces
to fill based on the minority enrollment at that school. Therefore, many
schools did not feel they could release a teacher to accompany so few
students, and so decided not to participate. Other schools did not agree
with the goals of the symposium or with the criteria for student selection.
One school referred to the guidelines as racist. Still another school
said they did not have any qualified minority students. Some schools
were sent a list of minority student names given to us by community
organizations as potential participants. One school failed to identify
the Native American students as such, and called to ask why we had rec-
ommended these names when we were primarily interested in recruiting
minority students. Final selection of student participants was made
by individual schools.

Recommendations

1. Make all arrangements and send out all information very early.
2. All information sent to superintendents should also be sent to the designated contact person at each school as soon as the person is named, in an attempt to make sure they have all the necessary information. All information should be repeated on a separate sheet of paper in a concise form with specific details concerning all arrangements.
3. Follow-up phone calls to superintendents to determine their interest in participating should be made no later than one week following their receipt of the initial letter. Request that they return the response card by a specific date. Include a space on the card to indicate both interest and lack of interest so the Symposium Coordinator will know that the superintendent has received the letter.
4. Make early efforts to actively recruit ethnic minority community people and organizations to work with the schools to encourage involvement in the symposium. Adult community members should also be encouraged to accompany the students to the conference.
5. A conference of this type should be at least three days to allow more schools to participate. The junior high students could attend the first day. Then divide the state into two sections, or more, depending on the number of days allotted for senior high participation. If it is decided not to have small group sessions, but rather have a lecture or panel presentation, then choose a large area with good acoustics.
6. Whenever possible, especially with large districts, contact a district staff member, such as a Science Coordinator or Curriculum Coordinator, as soon as possible to request their assistance in coordinating the recruitment and making the transportation arrangements for that district.

Transportation

Each school district should arrange their own transportation. Districts can then be reimbursed. Allowing each district to be autonomous in this respect will provide for last minute additions or cancellations of schools and students and expediate the total symposium planning. The Symposium Coordinator should stay in close contact with each coordinator for the various districts to facilitate information exchange.

Lodging

It may be advisable to utilize motels rather than campus residence halls for lodging for student participants if funding permits.

Residence hall vacancies vary from day to day and space cannot be reserved with any degree of certitude. Additionally the amount of space available is limited and in scattered locations. This fact necessitated assigning students and teachers from the same school, to widely separated facilities. As teachers are responsible for student supervision on such field trips, some teacher anxiety develops when housing arrangements of this nature are necessitated.

Student Scheduling for Small Group Sessions

Prologue

Students and teachers were scheduled into small group sessions for part of the day, according to the career area they had listed as their first choice. Although the majority of participants followed their schedule, some students attended sessions other than those for which they were scheduled. Others did not even attend some of the sessions. Because

students were given some choice in selecting small group presentations, it was not possible to keep students and teachers from the same school together as a group. This created some concerns. When one-half of the students were in the Main Ballroom for a special presentation, the number of students left to attend the other presentations was small.

Recommendations

1. If a small group format is used, and groups are to be kept small, some pre-scheduling must be done to avoid overcrowding rooms. This format is recommended when time and space allow it.

2. A decision should be made, prior to the conference, concerning the value of choice as opposed to control. The scheduling of student participants can then be planned accordingly

3. Sessions that require one-half of the students to attend while the other half go to small group sessions should be scheduled throughout the day rather than for only part of the day, to facilitate scheduling of uniform numbers of students into small group sessions. This might also permit more students to be invited to the symposium. An alternative might be to schedule large group presentations only when small groups are not in session.

4. Students and teachers from the same school should be requested to sit together at each large group session in order to facilitate teacher supervision and allow for student-teacher interaction and information sharing.

5. It may be advisable to allow teachers to choose the small group sessions they wish to attend rather than pre-scheduling them. They may have individual interest areas to pursue that would enable them to

utilize the information gained upon return to their classrooms.

Program Content

Prologue

Although there was a total of eighteen different small-group presentations, the science career fields represented were limited in number. There were two presentations in the biological sciences, two in the physical and environmental sciences, seven in engineering and computer sciences and nine in aerospace science and engineering. The original idea was to ask students to make selections based on the titles of the presentation without regard to the field. However, due to various factors, a decision was made to group the presentations into the four broader categories. At that point, most of the presenters had already been selected and contacted. Therefore, there were few vacant presenter spots left to fill.

Recommendations:

1. If a small group format is to be used, and this is highly recommended, an equal variety of science and other fields should be represented. Such fields should include more of the biological, physical, and environmental sciences, and systems management careers.
2. Titles of presentations listed in the program should clearly reflect the content of the presentation.
3. Organizations composed of women scientists and engineers, both on and off campus, should be included in planning and implementation of the program.
4. Selection of presenters should be based on their ability to

communicate with junior and senior high students and the role model that they represent, in addition to their experience in their own field.

Displays

Prologue

The displays for the symposium were furnished by NASA, Rockwell International, and the Earth Resources Sensing Applications Laboratory at OSU. While the displays were interesting, they did not lend themselves to student involvement, with the exception of the display by ERSAL. The highlight of the display area was the area where student photographs were being taken.

Recommendations

1. Student photographs are definitely recommended but should be taken in a separate room away from the presentations in order to cut down on the noise and confusion.
2. The number and types of displays available should be increased.
3. University departments in Science and Engineering should provide one or more displays.
4. There should be provision for as many "hands-on" types of displays as possible.
5. Staff members should be available at each display to allow students to ask questions regarding the displays.
6. The Science Specialist at the State Department of Education should be included on the planning committee and should provide materials and one or more exhibits.
7. The facility where the displays will be located should be

reserved for 1-2 days before and after the symposium to allow time to set-up and dismantle exhibits. These reservations should be confirmed in writing as soon as the symposium date has been set.

Student Volunteer Help

Prologue

Shortly after the initial planning meeting, the three ethnic student organizations on campus were asked to provide a student representative to serve on the Advisory Committee. Although those students who attended the committee meetings appeared to be interested in the idea of the symposium, some of them felt they had not been given the opportunity to be as involved or to give as much in-put as they would have liked. The actual number of students who actively participated on the Advisory Committee was small.

Recommendations

1. Include students in the proposal writing process. Give them the opportunity to undertake some of the major planning and organizational responsibilities such as publicity and working at the conference in various areas where help is needed.
2. Science and engineering organizations should be contacted. These organizations could be involved in the planning and follow-up activities in the various schools by providing guest speakers and/or offering to fund partial scholarships for students who may be interested in entering a career in one of these fields.
3. Contact with both student groups and professional organizations should be made via the President of that organizations with the request

that she/he coordinate their group's effort.

Evening Session

Prologue

Based on the recommendations from those who had attended evening sessions at previous symposia, it was decided not to have an evening session. These had been determined as unsuccessful. Following favorable publicity and phone calls from the community, it was decided to have a brief evening program that would include some of the day's speakers and allow time to view the exhibits. This provided an opportunity for additional students from nearby school districts to attend the symposium.

Recommendations

If an evening session has been planned, arrange for publicity to start early.

Publicity

Prologue

Publicity for the symposium was arranged through the Campus Information Office, but the major portion of the publicity was organized and coordinated by a volunteer community person who had experience in this area. In conjunction with publicizing the symposium, Nichelle Nichols of the Star Trek television program, who is employed by the National Aeronautics and Space Administration Public Relations Department, along with Mr. Willie L. White, Jr., Chief of Equal Opportunities Programs at NASA-Ames Research Center, visited Oregon to make several public appearances on behalf of the symposium. Press conferences were arranged in rooms

APPENDICES

APPENDIX A

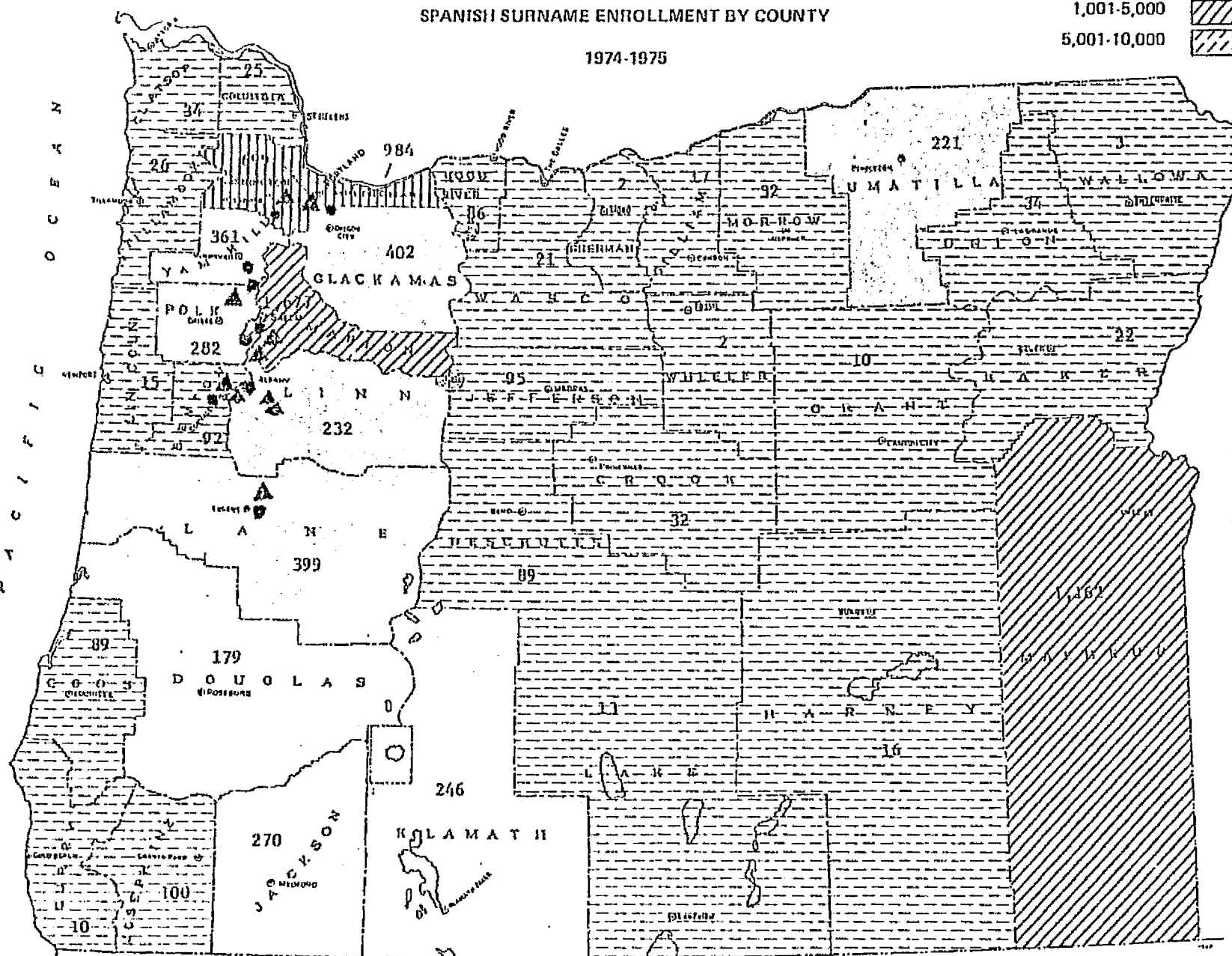
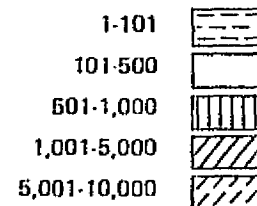
MINORITY ENROLLMENT BY COUNTIES

pp. 44-46

MAPS

SPANISH SURNAME ENROLLMENT BY COUNTY

1974-1975

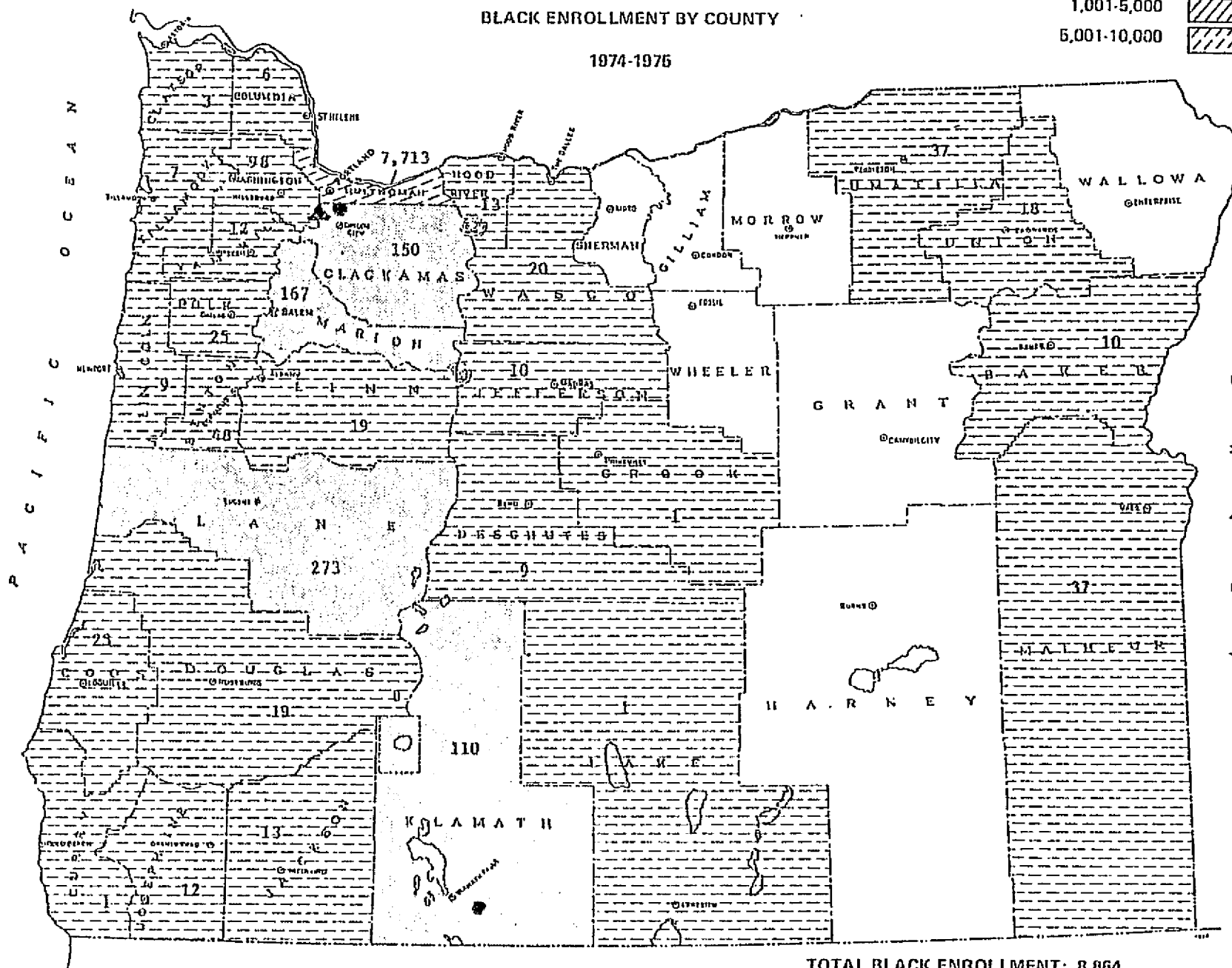
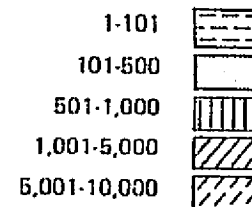


Ⓔ = SENIOR HIGH SCHOOL

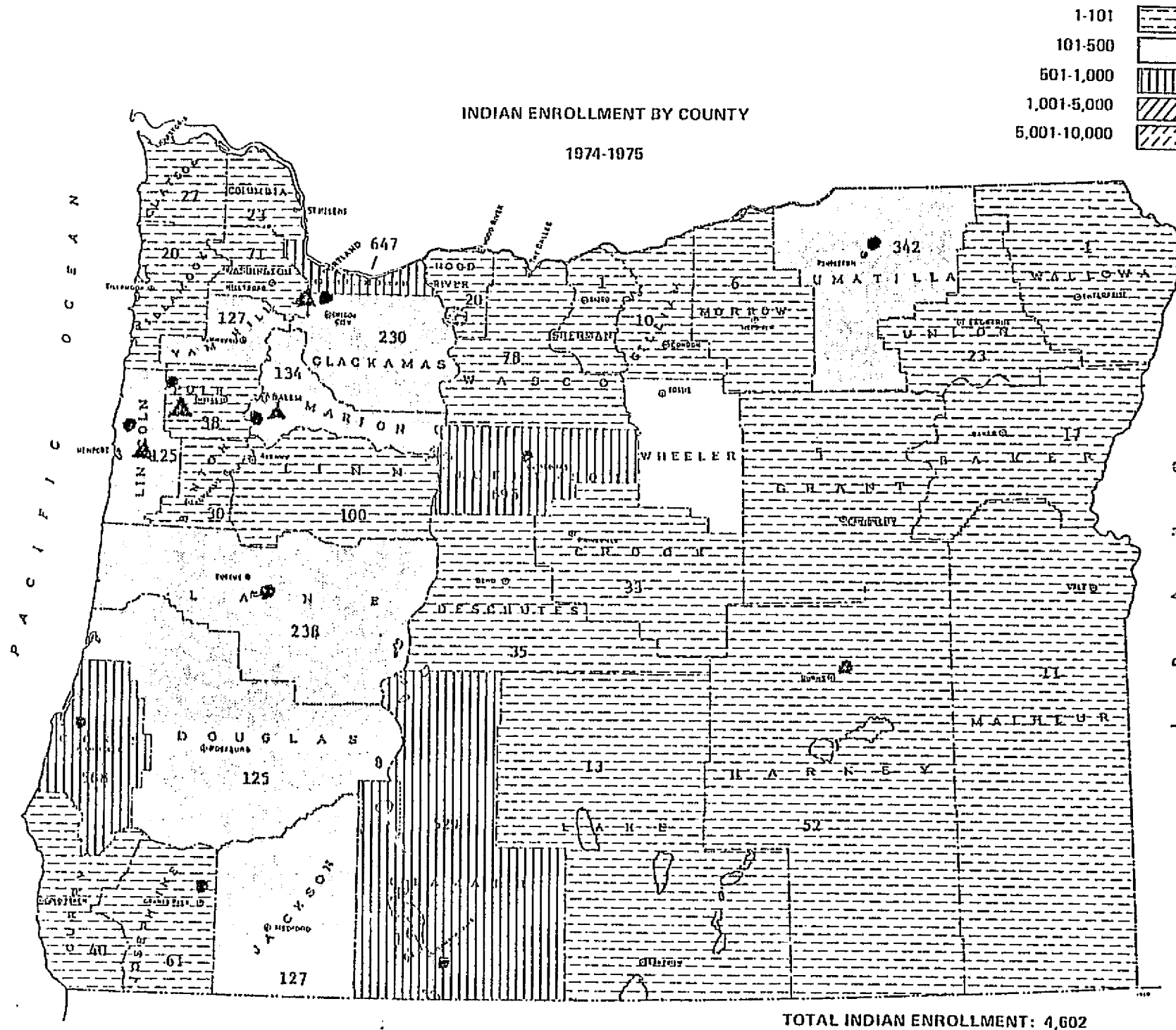
 = JUNIOR HIGH SCHOOL

TOTAL SPANISH SURNAME ENROLLMENT: 7,979

1974-1975



TOTAL BLACK ENROLLMENT: 8,864



APPENDIX B
MAILING LIST FOR
JUNIOR AND SENIOR HIGH SCHOOL DISTRICTS
(Method listed: Superintendent's Name, School District)

1. Dr. Thomas D. Wogaman, Corvallis Dist 509J
2. Mr. Donald Charles, North Clackamas Dist 12
3. Dr. C. Edwin Ditto, Oregon City Dist 62
4. Dr. Thomas W. Payzant, Eugene Dist 4J
5. Mr. William E. Lewellen, Springfield Dist 19
6. Dr. Richard Smith, Albany Dist 5
7. Dr. George M. Henderson, Lebanon Dist 16C
8. Mr. Joey W. Acaiturri, Sweet Home Dist 55
9. Mr. Lawrence P. Sydow, North Marion Dist 15
10. Mr. Milford Biddington, St. Paul Dist 45
11. Mr. Albert Gregory, Mt. Angel Dist 91
12. Mr. William M. Kendirck, Salem School Dist 24J
13. Mr. Elbert Brock, Gervais Dist 76
14. Mr. Lyle E. Rilling, Jefferson Dist 14J
15. Dr. Jens Robinson, Woodburn Dist 103
16. Mr. Bert W. Kleiner, Silverton Dist 4
17. Dr. Howard F. Horner, David Douglas Dist 40
18. Dr. Robert W. Blanchard, Portland Dist 1J
19. Mr. Gordon Pratt, Central School Dist 13J
20. Mr. D. Herbert Armstrong, Forest Grove Dist 15
21. Mr. Francis H. Dummer, Dayton Dist 8
22. Dr. Orval L. Ause, McMinnville Dist 40
23. Mr. Donnell Mitchell, Willamina Dist 30J
24. Dr. James C. Ulum, North Bend Dist 13
25. Dr. George G. Bowers, Jefferson Dist 509J
26. Mr. James B. Conroy, Klamath County Dist
27. Dr. Earl E. Ferguson, Klamath Falls UHS Dist 2
28. Dr. Earl Hampton, Lincoln County Dist
29. Dr. Marvin L. Evans, Albany UHS Dist 8J
30. Mr. W.L. McPartland, Nyssa Dist 26
31. Mr. Maurice Irons, Ontario Dist 8C
32. Mr. Latrelle Smoot, Gervais Union High School Dist 1
33. Mr. John Thompson, Silverton UHS Dist 7J
34. Mr. Edward Lonefight, Chemawa Indian School

(Mailing List for Junior and Senior High School Districts, continued)

35. Dr. Robert W. Blanchard, Portland Dist 1J
36. Superintendent not Designated, Chenoweth Dist 9
37. Mr. George Yertson, The Dalles Dist 12
38. Dr. Lane E. DuBose, Hillsboro UHS Dist 3JT
39. Dr. John W. Crowley, Coos Bay Dist 9
40. Mr. Russel E. McCollister, Athena-Weston Dist 29R
41. Mr. Richard Scott, Hermiston Dist 8
42. Dr. Jim Hitter, McLoughlin UHS Dist 3
43. Mr. Ellis H. Neal, Pendleton Dist 16R
44. Superintendent not designated, Umatilla School Dist 6R

APPENDIX C
MAILING LIST FOR
COMMUNITY COLLEGES

1. Blue Mountain Community College, Pendleton
2. Central Oregon Community College, Bend
3. Chemeketa Community College, Salem
4. Clakamas Community College, Oregon City
5. Clatsop Community College, Astoria
6. Lane Community College, Eugene
7. Linn-Benton Community College, Albany
8. Mt. Hood Community College, Gresham
9. Portland Community College, Portland
10. Rogue Community College, Grants Pass
11. Southwestern Oregon Community College, Coos Bay
12. Treasure Valley Community College, Ontario
13. Umpqua Community College, Roseburg
14. Collegio Ceasar Chavez, Mt. Angel

FOUR YEAR INSTITUTIONS

1. Eastern Oregon State College, La Grande
2. Oregon College of Education, Monmouth
3. Oregon Institute of Technology, Klamath Falls
4. Portland State University, Portland
5. Southern Oregon State College, Ashland
6. University of Oregon, Eugene
7. University of Oregon Health Sciences Center, Portland
8. University of Oregon Medical School, Portland
9. University of Oregon Dental School, Portland

APPENDIX D
MAILING LIST FOR
ETHNIC AND WOMEN'S ORGANIZATIONS

1. Spenser Sahmaunt, Bureau of Indian Affairs , Portland
2. Minerva Soucie, Burns Tribal Education Committee, Burns, OR
3. Chicano Indian Study Center of Oregon, Corvallis
4. Coos Confederated Tribes, Bill Broinard, Chairman , Coos Bay, OR
5. Mrs. A.J. Haynes, Delta Sigma Theta Sorority, Portland
6. Shirley Iman, Fort Dalles Urban Indian Association, The Dalles, OR
7. Jose Villa, High School Equivalency Program , Eugene, OR
8. Patty Eberhardt, Inter-Institutional Committee on Alternative Roads to Education OSU
9. Hilton E. Smith, Kappa Alpha Psi Fraternity, Portland
10. Frank Loera, Migrant Education Service Center, Salem
11. Carolyn Allen, Minority Science Advancement Program, Pullman
12. Bill Ray, Northwest Indian Education Association, Portland
13. National Association for the Advancement of Colored People, Portland
14. Dick Pizzo, Office of High School-College Relations, Eugene
15. Frankie Tupling, Oregon Indian Education Association, Salem
16. Oregon Rural Opportunities, Salem
17. Organization of Forgotten Americans, Klamath Falls, OR
18. Portland State University Education Center, Portland
19. Siletz Confederated Tribes, Art Bensell, Chairman, Siletz, OR
20. Bill Burke, Umatilla Tribal Education Committee, Pendleton, OR
21. Lowell Curley, United Indian Students in Higher Education, Portland
22. Vernon Chatman, Urban League of Portland
23. Sister Francella, Urban Indian Center, Portland
24. Vocational Rehabilitation Center, Department of Human Resources, Salem
25. Marlin Reimer, Warm Springs Tribal Education Committee, Warm Springs, OR
26. Pam Nealy, Women Studies Center, OSU
27. Claudie Barton, Women's Engineering Student Section, OSU
28. Indian Education Program, Portland
29. Warren R. Clements, Oregon Association of Indians in Higher Education, Eugene
30. Native American Youth Association, Portland
31. Lucy Lamb, Indian Education Act, Portland
32. Vonne Peckham, Faculty Women's Club, OSU

INDIVIDUAL INVITATIONS

1. Mr. Harry Lujon, Native American Programs, New Mexico State University
2. Armando R. Alba, Placement and Career Services, New Mexico State University
3. Susie Erlich, Director of Puyllup Indian Reservation School, Tacoma, WA
4. Mr. William Benham, Indian Education Research Center, Washington, D.C.
5. Mr. William Demert Jr., Office of Indian Education Programs, Washington, D.C.
6. Vine Deloria, Jr.
7. Michael D. Jackson, Staff Consultant, House Interior Committee, Washington, D.C.
8. Mr. Andrew Lawson, Executive Director NIEA, Minneapolis
9. Carol Metcalf, University of New Mexico, Native American Programs
10. Dr. George Bluespruce, Office of Native American Programs, Washington, D.C.
11. Geraldine Velorde, Office of Equal Opportunity, Washington, D.C.
12. Lincoln D. Billedeaux, Indian Center Inc., Los Angeles, CA
13. Harlan Hall, Indian Center Inc., Los Angeles, CA
14. John Kaskaske, Goddard Space Flight Center
15. Phillip Stevens, President, Ultra Systems, Irvine, CA
16. Tom Warner, President, Aircraft Engineering Corp., Paramount, CA
17. Mr. David Lester, United Indian Development Association, Los Angeles, CA
18. Andrew W. Ebona, United Indian Planners, Washington, D.C.

APPENDIX E
MAILING LIST FOR
ADVISORY CONTACTS

1. Dean Stuart E. Knapp, Dean of Undergraduate Studies, OSU
2. Dr. Solon Stone, Assistant Dean of Engineering, OSU
3. Mr. Edward J. Condon, Oceanography, OSU
4. Dr. Olaf Boedtke, School of Science, OSU
5. Mr. Dick Pizzo, Office of High School-College Relations, Eugene
6. Mr. Clement Azure, Compensatory Ed. Specialist
Oregon Department of Education, Salem
7. Mr. Ray Thiess, Science Education Specialist
Oregon Department of Education, Salem
8. Dr. Harold M. Livingston, Director of Classroom TV, OSU
9. Dr. Ralph Shay, Assistant Dean of Research, OSU
10. Dr. Miriam Orzech, Director, Educational Opportunities Program, OSU
11. Ms. Myrtle Mercer, Student, OSU
12. Mr. Marc Anderson, Student, OSU
13. Mr. Porfirio Pena, Student, OSU
14. Mr. David Hatch, Student, OSU
15. Mr. Gilbert Beanes, Student, OSU

APPENDIX F

Copies of Correspondence Sent to Presenters

pp. 53-62

Office of Educational
Opportunities
Symposium



Corvallis, Oregon 97331 (503) 754-3628 754-2999
"Mother Earth, Father Sky"

February 15, 1977

Eldec Corporation
16700 13th Ave. West
Lynwood, WA 98036

Dear Personnel Director:

Oregon State University, in cooperation with the National Aeronautics and Space Administration (NASA) is sponsoring a Space Symposium on April 27 and 28, 1977. It will be held in the Memorial Union, on campus. The program will include information of interest to students in junior high, senior high, colleges and universities, as well as to counselors and administrators. The purpose of this program is to stimulate interest in pursuing careers in science and engineering. A special goal of this conference is to attract women and minority students into such careers.

We would like to invite you to contribute to this symposium by participating as a presenter during the times reserved for small group sessions. These sessions are intended to inform students about career opportunities in science and engineering fields. April 27 will focus on junior high students, while April 28 will be directed toward senior high and college students. Additionally, display booth space will be provided for organizations to discuss permanent and seasonal employment opportunities in their field.

As plans are finalized, those contractors who wish to participate in this special event will receive additional information including set-up times and booth staffing times. Please complete the enclosed form regarding your interest in attending and return it to me as soon as possible. If you have questions or desire further information, contact Diane Clayton at (503) 754-2999.

Cordially,

Diane Clayton
Symposium Coordinator

DC/jm

INCLUDED WITH LETTER TO NASA SUB-CONTRACTORS

Please return to: Diane Clayton
Symposium Coordinator
Educational Opportunities Program
Oregon State University
Corvallis, OR 97331

Our organization will _____ will not _____ be able to participate in the
NASA Space Symposium on April 27-28, 1977 at Oregon State University.

NAME AND ADDRESS OF ORGANIZATION:

PHONE NUMBER:

NAMES OF REPRESENTATIVES WHO WILL ATTEND:

TITLE OF POSITION:

We will _____ will not _____ make a small group presentation
We will _____ will not _____ require a booth.

*If you are planning to have a booth, you will need a poster identifying
your organization, handouts, and job information for temporary, seasonal,
and permanent positions with your organization or company.

WE PLAN TO PARTICIPATE ON April 27 _____ April 28 _____ (please check one
or both)

TITLE OF SMALL GROUP PRESENTATION:

SHORT STATEMENT DESCRIBING YOUR SESSION:

AUDIO-VISUAL REQUIREMENTS:

INITIAL LETTER TO PRESENTERS

Office of Educational
Opportunities
Symposium

Oregon
State
University

National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3628 754-2999
"Mother Earth, Father Sky"

February 28, 1977

Ms. Glenda Ahhaitty
Rockwell International
Code F A 33
12214 Lakewood
Downey, CA 90241

Dear Ms. Ahhaitty:

On behalf of the National Aeronautics and Space Administration and Oregon State University, thank you very much for your interest in contributing to our symposium for junior and senior high school minority students of Oregon.

The theme for our symposium will be "Mother Earth, and Father Sky." We hope the Native Americans, Blacks, Chicanos, and young women will be motivated by the theme and by your presentation concerning careers in science and engineering. The accompanying teacher and counselor will be urged to continue working with the interested students after you leave.

The program will start Wednesday, April 27th, at 9:30 a.m. in Oregon State University Memorial Union's Main Ballroom. The first day will be reserved for junior high students, and the second day for secondary students and their teachers. We are asking each presenter to develop the same topic each day, keeping in mind the age-level of the student.

Each student will have an opportunity to attend three general sessions. Nichelle Nichols of Star Trek will direct a play which recognizes how much students are already involved in the space age. An astronaut will address the two groups on the Reality of Manned Space Travel and Manned Flight Opportunities in the Years Ahead. Another general session will be devoted to the past, present, and future of aerospace research and finally, a live broadcast via the CTS satellite will bring the Spin-Off story from Ames Research Center. In addition to the general session, each student will have an opportunity to select from 15-20 concurrent session topics. Each student will be asked to select those concurrent sessions best suited for his or her skills. They will attend several 20 minute modules. In order for this variety of experience to occur, you will be conducting seven concurrent sessions (20 minutes each) for the Junior High students, and six concurrent sessions the following day for the Senior High students. The group attending your session will vary in size from 20-30 students.

We urge you to develop, for these sessions, a program which encourages interaction, a program which dramatically illustrates your field of interest, and a program which encourages students to consider the career potential for your chosen field. We hope, by your example, many of the students will be inspired. In addition, we expect the manner of presentation to at least focus on one big idea that students may retain.

If you have any questions, please call Barbra Bowman, Symposium Director, at (503) 754-3628, Diane Clayton, Symposium Coordinator at (503) 754-2999, or Garth A. Hull, National Aeronautics and Space Administration, Education Programs Office, (415) 965-5543. We are looking forward to working with you this April.

Cordially,



Diane Clayton,
Symposium Coordinator

DC/jm

INCLUDED WITH INITIAL LETTER TO PRESENTERS

Please Return to: Diane Clayton
Symposium Coordinator
Educational Opportunities Program
Oregon State University
Corvallis, OR 97331

Name _____

Affiliation _____

Address _____

Telephone _____

Title of Presentation: _____

Short Statement describing your session:

Audio-Visual requirements:

NOTE: If you wish overnight accommodations reserved, at your expense,
please return the enclosed card to:

Nendel's Inn
1550 NW 9th
Corvallis, OR 97330

no later than March 25, 1977.

FOLLOW-UP LETTER TO PRESENTERS
INVITATION TO THE RECEPTION

Oregon
State
University

Office of Educational
Opportunities
Barbra Bowman
Symposium Director

National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3628 754-2999

"Mother Earth, Father Sky"

April 17, 1977

Glenda Ahhaitty
Code FA 33
Rockwell International
12214 Lakewood
Downey, CA 90241

Dear Ms. Ahhaitty:

As April 27 approaches, enthusiasm is growing, both among our ourselves and among the students who will be attending the upcoming Space Symposium. It will be a unique educational opportunity for all who will be involved.

We would like to invite you to a reception given by Oregon State University. It will be held in Room 109 D & E in the Memorial Union on campus. This will be an opportunity for those who are working on the symposium to meet one another and familiarize themselves with the facilities at the Memorial Union.

Would you please send a self-profile to our office, as soon as possible? We hope to make these available to those attending the symposium. In order to have the profiles printed and available for distribution on April 27, we must have them by April 22.

The Symposium schedule, a map of Corvallis, and a map of the OSU campus are enclosed for your information. If you have questions concerning the symposium arrangements or the times of your presentation, please call Barbra Bowman, Symposium Director at (503) 754-3628, or Diane Clayton, Symposium Coordinator, at (503) 754-2999. We appreciate your efforts to make this symposium a success.

Cordially,

Barbra Bowman

Barbra Bowman
Symposium Director

Diane Clayton

Diane Clayton
Symposium Coordinator

DC/jm

P.S. The reception is April 26, at 1:30 pm

-58-

OSU/NASA SYMPOSIUM

PROGRAM

WEDNESDAY, April 27:

8:30 - 9:40 am	Registration
9:40 - 9:55	Welcome Address
9:55 - 10:25	Dramatic Presentation, written and directed by Nichelle Nichols
10:35 - 11:45	Small Group Sessions (20 minutes duration)
11:00 - 11:40	General Session with $\frac{1}{2}$ of the students
11:50 - 12:25 pm	Lunch. Workshop for teachers and counselors
12:30 - 2:05	Small Group Sessions (20 minutes duration)
1:20 - 2:05	General Session with $\frac{1}{2}$ of the students
2:15 - 3:00	General Session - Astronaut
3:00 - 3:15	Concluding Announcements

7:00 - 9:00 pm Evening Session, Open to the Public

THURSDAY, April 28:

8:30 - 9:30 am	Registration
9:30 - 9:45	Welcome Address
9:45 - 10:15	Dramatic Presentation, written and directed by Nichelle Nichols
10:15 - 10:55	General Session - Astronaut
11:00 - 11:45	Small Group Sessions (20 minutes duration)
11:00 - 11:40	General Session with $\frac{1}{2}$ of the students
11:50 - 12:25 pm	Lunch. Workshop for teachers and counselors
12:30 - 1:05	General Session, "The Space Shuttle Program"
1:10 - 2:55	Small Group Sessions (20 minutes duration)
2:10 - 2:55	General Session with $\frac{1}{2}$ of the students
3:00 - 3:15	Concluding Announcements

INCLUDED WITH FOLLOW-UP LETTER TO PRESENTERS

FINAL ARRANGEMENTS FOR
OSU/NASA SYMPOSIUM

April 19, 1977

Name(s): _____

Affiliation: _____

Room Assignment: _____

Time of your presentation(s): _____

Dates of Presentation(s): _____

Audio Visual Equipment reserved for you: _____

Enclosures: _____

If you have not already reserved motel accommodations, might we urge you to do so as soon as possible. Some suggested motels in Corvallis, Oregon are:

Townehouse, 350 SW 4th	753-4496
Best Western, 800 NW 9th	753-7326

Parking on the OSU campus is quite limited. The enclosed map will indicate available parking space for visitors to the campus. If you arrive on campus before 8:15 am, there is a good possibility of space being available in the lot adjacent to the Memorial Union. It is a coin-operated, 25¢ fee lot. Visitors may also park in student parking areas when displaying a courtesy parking permit obtained at the main entrance gate to OSU.

INVITATION TO THE BANQUET

Office of Educational
Opportunities

Barbra Bowman
Symposium Director

Oregon
State
University

National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3628 754-2999

"Mother Earth, Father Sky"

April 15, 1977

Glenda Ahhaitty
Code FA 33
Rockwell International
12214 Lakewood
Downey, CA 90241

Dear Ms. Ahhaitty:

A banquet will be held April 28, 1977, from 6-9 pm in "The Forum," Snell Hall, on the Oregon State University campus. We are taking this opportunity to thank those who have assisted in the planning and production of the Space Symposium sponsored by the Educational Opportunities Program at OSU and the National Aeronautics and Space Administration.

An invitation is being extended to you, to attend this banquet as our guest, so that we might express our appreciation to you, for your contribution to the success of the Symposium. If you wish to bring a guest, additional reservations are available at a cost of \$4.50 per person. In order for us to make final arrangements, we must know whether or not you plan to attend. Please let us know of your plans no later than April 22, by calling Barbra Bowman, Symposium Director, at 754-3628, or Diane Clayton, Symposium Coordinator, at 754-2999.

Cordially,

Barbra Bowman

Barbra Bowman
Symposium Director

Diane Clayton

Diane Clayton
Symposium Coordinator

DC/jm

PLEASE R.S.V.P. BY APRIL 22.

Office of Educational
Opportunities

Barbra Bowman
Symposium Director



National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3628 754-2999

"Mother Earth, Father Sky"

May 3, 1977

The Educational Opportunities Program at Oregon State University would like to thank you for your participation in the OSU/NASA Space Symposium held on the OSU campus, April 27 and 28, 1977. Your presentation helped to make the program a success.

You might be interested to know that there were over 800 students and teachers in attendance during the two days. After reading comments made by students and teachers on the evaluation forms, we feel the goal of motivating students to consider careers in science and engineering fields, was met.

Never before in the history of Oregon State University have there been so many minority, non-college students, primarily Native American, on campus. For the first time in the history of the Chemawa Indian School were so many of the students permitted to attend such a function. So in addition to the success of your individual sessions, we can also be encouraged by these two firsts.

Again, thank you for your contribution to the symposium.

Most sincerely,

A handwritten signature in cursive script that reads "Barbra Bowman".

Barbra Bowman
Symposium Director

A handwritten signature in cursive script that reads "Diane Clayton".

Diane Clayton
Symposium Coordinator

BB/jm

APPENDIX G

Copies of Correspondence Sent to Participating Schools

pp. 64-81

Office of Educational
Opportunities
Symposium



Corvallis, Oregon 97331 (503) 754-3628 754-2999
"Mother Earth, Father Sky"

February 8, 1977

Mr. Donald Charles, Superintendent
North Clackamas School District 12
4444 SE Lake Road
Milwaukie, OR 97222

Dear Mr. Charles:

Oregon State University, in conjunction with the National Aeronautics and Space Administration (NASA), is presenting a Space Symposium on April 27 and 28, 1977. It will be held in the Memorial Union, on campus. On April 27 the emphasis will be on junior high students with April 28 directed toward senior high students. In presenting this program, the sponsors hope to stimulate greater interest in science and engineering careers on the part of students and faculty. We are especially interested in having women and minority students attend this symposium.

We would like to extend an invitation to several schools within your district to attend. A list of these schools is enclosed. Transportation and lunch will be arranged and provided for school participants. If the participation of your district may be limited, due to financial constraints, please let us know. It may be possible for us to underwrite a portion of the teacher time loss for some schools. Approximately 800 people from selected junior and senior high schools are expected to take part.

If you are interested in having your district share this unique experience with us, please return the enclosed card before February 17, 1977. It would be most helpful if you would indicate the appropriate person(s) we can contact to assist us in reaching interested students. As plans are finalized, further information will be made available to interested districts. If you have further questions, contact Diane Clayton at (503) 754-2999.

Cordially,

Diane Clayton
Symposium Coordinator

DC/jm

INCLUDED WITH LETTER TO SCHOOL DISTRICT SUPERINTENDENTS

School District _____
is interested in participating in the NASA
symposium to be held at OSU on April 27 & 28,
1977.

The appropriate people to contact are:

<u>Name</u>	<u>Address</u>	<u>Phone</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Sent with Self-addressed Envelope to large districts

School District _____
is interested in participating in the NASA Symposium
to be held at OSU on April 27 & 28, 1977.

The appropriate person(s) to contact would be:

_____	_____	_____
(name)	(address)	(phone)
_____	_____	_____
(name)	(address)	(phone)

Office of Educational
Opportunities

Barbra Bowman
Symposium Director

Oregon
State
University

National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3628 754-2999

"Mother Earth, Father Sky"

March 15, 1977

The superintendent of the district has given approval for your school to participate in the Oregon State University - National Aeronautics and Space Administration Space Symposium, to be held in the Memorial Union, on campus, April 27 and 28, 1977. Your name was given to us as the appropriate person to contact regarding the selection of student participants.

The selection should be based on the enclosed guidelines. As you will note, we are primarily interested in having women and minority students attend, as the program focus will be on this segment of the student population. For this reason, it is strongly urged that this unique educational opportunity be actively extended to women and minority students in a manner that will encourage their participation in this symposium.

Because of the limited funds and facilities available for this conference, it is necessary to limit the number of students each school district may send. Your district has been allotted the number of spaces indicated on the enclosed form. Available spaces have been divided among the participating schools in your district. In the event that some of these schools are not able to fill the number of spaces reserved for them, they may allow other participating schools to fill them.

Please list, on the forms provided, the names of students and staff from your school who will be coming to the Symposium. Return

the participant list and the individual registration forms to us by April 1, 1977 so that we may complete arrangements for housing, meals and transportation.

As soon as plans are finalized, you will receive additional information regarding the program and transportation. We are looking forward to seeing you in April.

Cordially,

Diane E. Clayton

Diane Clayton
Symposium Coordinator

DC/jm

Copies to:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

& OREGON STATE UNIVERSITY

present

"Mother Earth, Father Sky"

A SPACE SYMPOSIUM

April 27 and 28, 1977, Memorial Union, OSU

It is strongly urged that this unique educational opportunity be actively extended to women and minority students in a manner that will encourage their participation in this symposium, as this is the segment of the student population we are primarily interested in reaching.

For this reason, selection of student participants should be based on the following criteria.

CRITERIA FOR SELECTION OF STUDENTS TO ATTEND THE NASA/OSU SYMPOSIUM

Those who attend the conference should be students:

- * WHO ARE INTERESTED IN ATTENDING THE SPACE SYMPOSIUM.
- * WHOSE PRESENT LEVEL OF ACHIEVEMENT AND/OR MOTIVATION WOULD SEEM TO PRECLUDE THEIR ADMITTANCE TO A COLLEGE OR UNIVERSITY.
- * WHO MAY NOT BE AWARE THAT A POST-SECONDARY EDUCATION MIGHT BE A REALISTIC OPTION FOR THEM.
- * WHO, IN THE PAST, MAY NOT HAVE RECEIVED ENCOURAGEMENT AND GUIDANCE NECESSARY TO MOTIVATE THEM TO PURSUE AN EDUCATION BEYOND HIGH SCHOOL.
- * WHO MAY NOT SEE THEMSELVES AS HAVING THE POTENTIAL TO SUCCEED IN COLLEGE.

Goals of the Symposium.

1. To actively encourage fuller participation in science and engineering professions on the part of women and minority students.
2. To provide an educational opportunity for women and minority students to learn more about careers in science and engineering fields, where they are extremely under-represented.
3. To demonstrate to these students that their career path can encompass many options, including those of science and engineering.
4. To present women and minority scientists and engineering career role models for students to emulate.

SCHOOL PARTICIPANT LIST

- A. School District _____ may send _____ students.
- B. Your school, _____, is allotted _____ of these spaces.
- C. Please type or print below, the names of students, teachers and/or counselors who will be attending the Space Symposium in April, 1977.

TEACHER(S)/COULSELOR(S)

(Name)

1. _____
2. _____

STUDENT PARTICIPANTS

(Name)

(Grade Level)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
& OREGON STATE UNIVERSITY

present

A SPACE SYMPOSIUM

April 27 and 28, 1977

Memorial Union, OSU

REGISTRATION: 8:30 am - 9:30 am

LIFT OFF: 9:30 am - TO EXPLORE POINTS UNKNOWN

LOCK ON AND BEAM ABOARD. JOURNEY FROM "MOTHER EARTH" TO "FATHER SKY."

TELEPORT DOWN - TO DISCOVER MORE ABOUT CAREERS OF YOUR CHOICE.

(Directions: Rank the following career fields from 1 to 4, according to your interests. A rank of 1 indicates first choice and 4 last choice)

RANK

CAREER FIELD

_____ Biological Sciences: This field is concerned with the study of living things and includes areas such as Biochemistry, Biology, and Microbiology.

_____ Environmental and Physical Sciences: These fields are concerned with the composition of matter, the fundamental laws of the universe and the relationship between people and nature. Included are Chemistry, Oceanography and Forestry.

_____ Aerospace Science and Engineering: These fields involve research and development in aircraft and space craft. Much of this research is applied to solving environmental problems on earth.

_____ Engineering and Computer Science: These fields use math, science and technology to design things and services for human needs in areas such as medicine, pollution, transportation, and communication.

SPACE RESERVATION FOR:

Name _____

School _____ Grade _____

School District _____

CLARIFICATION LETTER SENT TO SCHOOL CONTACTS

Office of Educational
Opportunities

Barbra Bowman
Symposium Director



National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3628 754-2999

"Mother Earth, Father Sky"

March 28, 1977

FOR YOUR INFORMATION

Apparently some confusion exists regarding the Space Symposium to be held in April at Oregon State University. In early February, the Superintendent of your school district received a letter inviting the district to participate in this symposium. The letter included information that was intended to be forwarded to a designated contact person at individual schools. Unfortunately, in many instances, it appears that this did not happen. Therefore, in order to clarify some information, please note the following:

- * The program on April 27 is intended for junior high students and teachers.
- * The program on April 28 will be directed toward high school and college students and teachers.

Therefore, your school will be attending the conference on one day only.

Transportation and lunch will be arranged and provided for school participants. You should plan to leave a designated central pick-up point at an hour that will enable you and your students to arrive at OSU in time to register at 8:30 am.

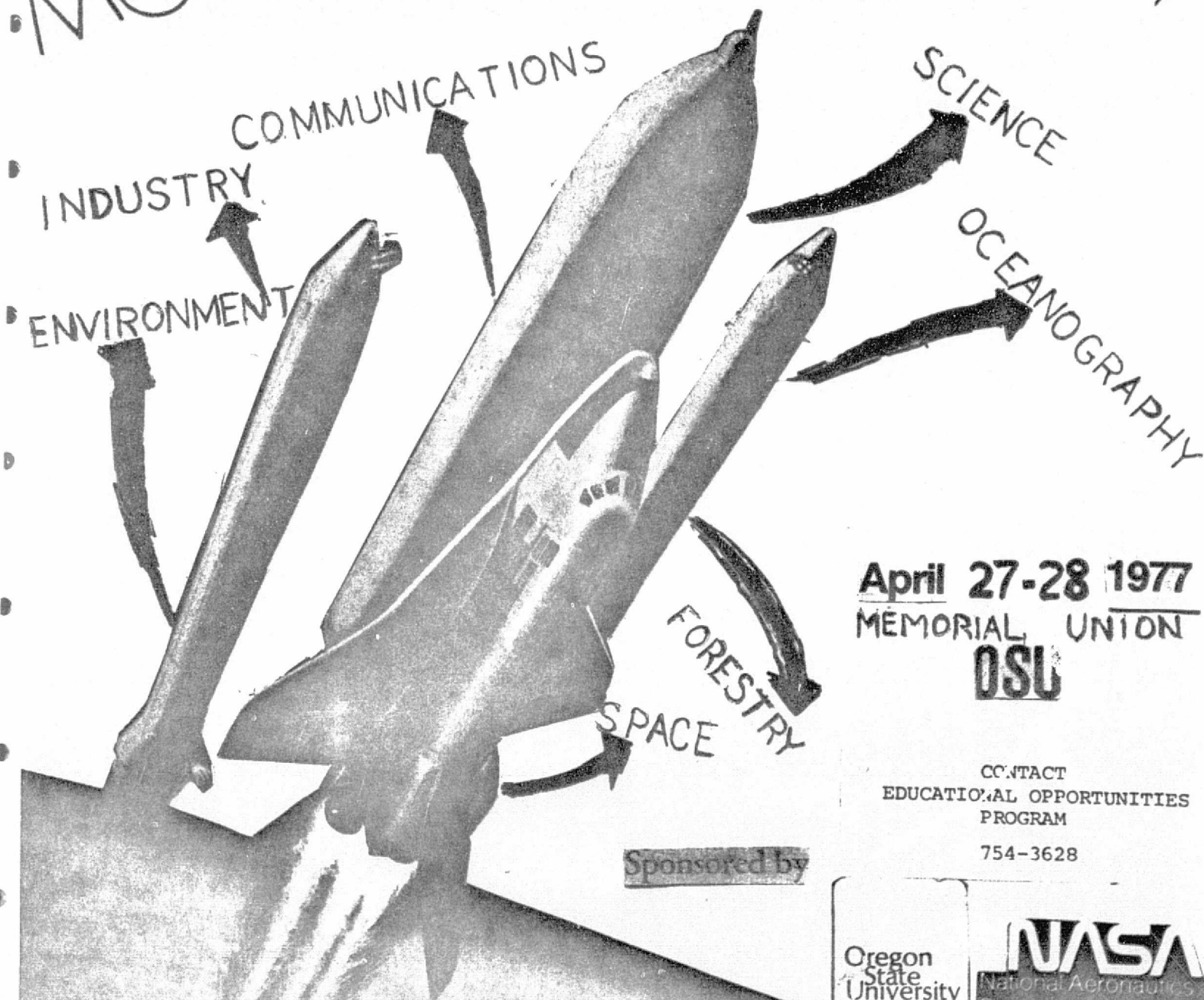
A special program for teachers is being planned during the lunch hour, which will include ideas for use in science classrooms. A teaching/learning resource packet of materials will be distributed to each teacher who attends the conference.

Please post the enclosed flyers in several prominent locations within your school building, to assist in publicizing this event. You will be receiving additional information at a later time. Please contact Diane Clayton, Symposium Coordinator, at (503) 754-2999, if you have any questions concerning the symposium.

A SPACE SYMPOSIUM

MOTHER EARTH - FATHER SKY

WHAT TECHNOLOGY IS DOING



April 27-28 1977
MEMORIAL UNION

OSU

CONTACT
EDUCATIONAL OPPORTUNITIES
PROGRAM

754-3628

Sponsored by

Oregon
State
University

NASA
National Aeronautics and
Space Administration

ORIGINAL PAGE IS
OF POOR QUALITY

Office of Educational
Opportunities
Barbra Bowman
Symposium Director

Oregon
State
University

National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3628 754-2999

"Mother Earth, Father Sky"

April 18, 1977

The following items are enclosed for your information: 1) a brief outline of the program, 2) a campus map, and 3) information regarding final arrangements for your school's participation. Parking will be available adjacent to Gill Coliseum. It is approximately a 10 minute walk from the parking area to the Memorial Union.

Registration will be from 8:30 - 9:30 am in the Memorial Union. Registration packets are to be picked up at the registration table by a designated staff member from each school. This staff member will distribute registration materials to individual participants from that school. Students and staff will then proceed to the M.U. Main Ballroom, where exhibits will be on display. The official program will begin at 9:30 am and end at approximately 3:15 pm. Buses will depart from Gill Coliseum at 3:45 pm.

Lunch will be available in the M.U. Main Ballroom at no cost to participants. There will be a "working" lunch for teachers, at which time teaching/learning materials and ideas will be made available.

A special evening program, from 7-9 pm, on Wednesday, April 27, is being planned for community people. There is no charge and it is open to the public. Some of the day's earlier programming will be repeated, including a presentation by Bruce McCandless, an astronaut with the National Aeronautics and Space Administration.

We are looking forward to seeing you at the Symposium. If you have further questions, please call 754-2999.

Cordially,

Barbra Bowman

Barbra Bowman
Symposium Director

Diane Clayton

Diane Clayton
Symposium Coordinator

DC/jm

ATTENTION: _____

FINAL ARRANGEMENTS
FOR OSU/NASA SYMPOSIUM

IMPORTANT: Please read the attached sheets carefully.
These are the final arrangements for your school. If you have
questions regarding these arrangements, please call 754-2999
immediately.

TRANSPORTATION ARRANGEMENTS

School District: _____

School: _____

Contact Person: _____

_____ student spaces have been reserved

_____ staff spaces have been reserved

_____ total spaces reserved

TRANSPORTATION FOR YOUR SCHOOL WILL BE VIA:

_____ Bus Company _____

_____ School district bus

_____ Other, (e.g. private car)
(Parking will be available adjacent to Gill Coliseum)

_____ Departure date from your school

_____ Departure time

_____ Pick up point for your school

_____ Departure date from OSU

_____ Departure time from OSU

_____ Approximate arrival time at your district pick-up point

N O T E: IF THE TOTAL NUMBER OF STUDENTS AND STAFF WHO WILL BE
COMING FROM YOUR SCHOOL DOES NOT AGREE WITH THE ABOVE
NUMBER, PLEASE CALL 754-2999 IMMEDIATELY.

INCLUDED WITH FINAL ARRANGEMENT LETTER TO CONTACTS OF THOSE SCHOOLS
REQUIRING OVERNIGHT ACCOMMODATIONS.

Each person will need to bring: _____

Upon arrival at OSU, please go directly to your assigned residence hall
to check in. When you arrive at the residence hall, ask for _____
_____. Meal tickets will be available at _____
_____. All meals will be served in Weatherford Hall.
Meal times are as follows:

Breakfast: 6:45 - 8:30 am

Dinner: 4:45 - 6:00 pm

Box lunches will be available in the Memorial Union Ballroom at 11:50 -
12:25 pm.

Please plan to arrive at the Memorial Union registration desk by
8:30 am, April 28.

Costs for transportation should be billed to OSU/NASA Symposium, Account
number 30-264-3001, Room 328 Waldo Hall, Oregon State University, Corvallis,
Oregon, 97331.

Use of private automobiles can be reimbursed at 11¢ per mile. Use the
preceding billing procedure.

INCLUDED WITH FINAL ARRANGEMENT LETTER TO CONTACTS OF THOSE SCHOOLS
REQUIRING OVERNIGHT ACCOMMODATIONS

ARRANGEMENTS FOR MEALS & HOUSING

School District: _____

School: _____

Contact Person: _____

Final arrangements for overnight lodging and meals for your students
and staff are as follows:

_____ students will be staying at _____ men's residence hall.

_____ students will be staying at _____ men's residence hall.

_____ students will be staying at _____ women's residence hall.

_____ students will be staying at _____ women's residence hall.

_____ total number of students

_____ staff will be staying at _____ men's residence hall.

_____ staff will be staying at _____ men's residence hall.

_____ staff will be staying at _____ women's residence hall.

_____ staff will be staying at _____ women's residence hall.

total number of staff

Your bus driver(s) will be staying at: _____
(name)

(address)

Office of Educational
Opportunities

Barbra Bowman
Symposium Director



National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3628 754-2999

"Mother Earth, Father Sky"

May 3, 1977

The Educational Opportunities Program at Oregon State University would like to thank you for your efforts in making it possible for students from your school to attend the OSU/NASA Space Symposium held on the OSU campus, April 27 and 28, 1977. You might be interested to know that over 800 students and teachers were in attendance during the two-day conference.

After reading the comments made by students and teachers, on the evaluation forms, we feel the symposium was a great success, and met the goal of informing students about career opportunities in the fields of science and engineering.

Again thank you for your support and contribution to the success of the program.

Most sincerely,

A handwritten signature in cursive script that reads "Barbra Bowman".

Barbra Bowman
Symposium Director

A handwritten signature in cursive script that reads "Diane Clayton".

Diane Clayton
Symposium Coordinator

DC/jm

THANK YOU LETTER TO SCHOOL CONTACTS IN SCHOOLS FOR WHICH WE WILL REIMBURSE
FOR TRANSPORTATION.

Office of Educational
Opportunities

Barbra Bowman
Symposium Director

Oregon
State
University

National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3628 754-2999

"Mother Earth, Father Sky"

May 3, 1977

The Educational Opportunities Program at Oregon State University would like to thank you for your efforts in making it possible for students from your school to attend the OSU/NASA Space Symposium held on the OSU campus, April 27 and 28, 1977. You might be interested to know that over 800 students and teachers were in attendance during the two-day conference.

After reading the comments made by students and teachers, on the evaluation forms, we feel the symposium was a great success, and met the goal of informing students about career opportunities in the fields of science and engineering.

Again thank you for your support and contribution to the success of the program. Please bill us, as soon as possible, for travel costs incurred by your school in order to come to the symposium.

Most sincerely,

Barbra Bowman

Barbra Bowman
Symposium Director

Diane Clayton

Diane Clayton
Symposium Coordinator

DC/jm

CLARIFICATION LETTER TO PORTLAND PUBLIC SCHOOLS

Office of Educational
Opportunities

Barbra Bowman
Symposium Director



National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3628 754-2999

"Mother Earth, Father Sky"

May 3, 1977

Due to a misunderstanding between Portland Public School program coordinators and the OSU/NASA Space Symposium staff regarding transportation arrangements, considerable confusion resulted in attempting to transport students from the greater Portland area, to the Space Symposium, held on the OSU campus in April. As a result of this confusion, some students and teachers invited to attend the symposium were unable to attend. This is unfortunate. To these students and teachers, may we offer our apology.

For your information, some words of explanation may help to describe what happened to cause the confusion. After sending a letter to the Superintendent of Portland Public Schools, inviting the Portland schools to participate, and requesting the names of contact people at each school, we sent additional information to these contact people, regarding the Space Symposium. We requested these contact people to send the names of students from their schools who would be interested in attending the conference. Some schools did return individual registration forms to us as requested, while others did not. We were anxious to have Portland school students participate, but we needed to know exactly who the students would be and how many would be coming. To assist us in obtaining this information, two Portland administrative staff members made individual school contacts.

A meeting was held in Portland, on April 5 with these staff members to discuss transportation arrangements and teacher supervision for students who would be coming to the symposium. Several possibilities were discussed at that time.

Following this meeting in Portland, arrangements were made by OSU with the Evergreen Bus Company to transport Portland area students to the symposium. The bus company designated the time of 6:15 am as departure time from Portland, in order to arrive at OSU by 8:30 am.

Each bus can carry 38 passengers, and students were assigned buses in as close proximity to their school as possible, without overloading buses. This information was then sent to the various schools.

Previous to this time, unknown to OSU, Portland staff sent a letter to all the schools outlining transportation arrangements they had made. When the letter from OSU arrived at the schools, containing arrangements made with the Evergreen Bus Company, mass confusion was the result.

Although this explanation does not remove disappointment on the part of your students, it may serve as a guide for those of us at OSU and the Portland Public Schools who attempt to coordinate future field trips for a large school district such as Portland.

We are pleased, that despite the confusion, many students from Portland schools were able to come to the conference. Over 800 Oregon teachers and students were in attendance during the two days. After reading the comments made by students on the evaluation forms, we feel the symposium was a success.

Again may we offer our apology. Thank you for your cooperation and understanding in this matter.

Very sincerely,



Barbra Bowman
Symposium Director



Diane Clayton
Symposium Coordinator

DC/jm

APPENDIX H

COPIES OF CORRESPONDENCE SENT TO COMMUNITY ORGANIZATIONS

pp. 83-84

Office of Educational
Opportunities
Symposium



Corvallis, Oregon 97331 (503) 754-3628 754-2999

"Mother Earth, Father Sky"

February 4, 1977

Mr. Spenser Sahmaunt
Bureau of Indian Affairs
Education Office
P.O. Box 3785
Portland, OR 97208

Dear Mr. Sahmaunt:

Oregon State University, in conjunction with the National Aeronautics and Space Administration (NASA), is sponsoring a Space Symposium on April 27 and 28, 1977. It will be held in the Memorial Union, on campus. The intent of this program is to present information that might interest students in pursuing a career in the areas of science or engineering. We are making a special effort to invite women and minority students.

We would like to extend an invitation to members of your organization to attend some or all of the program. As soon as plans are finalized, you will receive additional information. If you might be interested in participating, or need further information, please contact Diane Clayton, Symposium Coordinator, at (503) 754-2999.

Cordially,

Diane Clayton
Symposium Coordinator
Waldo 328
Oregon State University

PERSONAL LETTER TO INDIVIDUALS INTERESTED IN MINORITY STUDENT EDUCATION

Office of Educational
Opportunities
Barbra Bowman
Symposium Director



National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3628 754-2999
"Mother Earth, Father Sky"

April 22, 1977

The Educational Opportunities Program at Oregon State University, in conjunction with the National Aeronautics and Space Administration (NASA), is sponsoring a Space Symposium on April 27 and 28, 1977. It will be held in the Memorial Union, on campus. The intent of this program is to present information that might interest students in pursuing a career in the areas of science or engineering. We are making a special effort to invite women and minority students.

We would like to extend an invitation to you to attend some or all of the Symposium. April 27 is directed toward junior high students, while April 28 will focus on senior high, college and university students. A copy of the program is enclosed. Because of technical difficulties, the Communications Technology Satellite has been eliminated. A program addendum will be distributed at the symposium. If you have any questions, please contact Barbra Bowman, Symposium Director, or Diane Clayton, Symposium Coordinator at 754-2999.

Cordially,

A handwritten signature in cursive script that reads "Barbra Bowman".

Barbra Bowman
Symposium Director

A handwritten signature in cursive script that reads "Diane Clayton".

Diane Clayton
Symposium Coordinator

DC/jm

APPENDIX I

COPIES OF CORRESPONDENCE SENT TO COMMUNITY COLLEGES AND UNIVERSITIES

pp. 86-88

LETTERS TO COMMUNITY COLLEGES AND STATE COLLEGES IN OREGON

Office of Educational
Opportunities
Symposium



Corvallis, Oregon 97331 (503) 754-3628 754-2999
"Mother Earth, Father Sky"

February 4, 1977

Ms. Kay Thomison
Special Services
Chemeketa Community College
P.O. Box 1007
Salem, OR 97308

Dear Ms. Thomison:

Oregon State University, in cooperation with the National Aeronautics and Space Administration (NASA), is sponsoring a Space Symposium on April 27 and 28, 1977. It will be held in the Memorial Union, on campus. The program will include information about science and engineering careers, as well as a variety of special activities of interest to all. We are especially interested in having women and minority students attend.

We would like to extend a special invitation to students at your college to attend. It is expected that the symposium will attract many interested people throughout Oregon. Please make the invitation and information known to students and faculty, particularly faculty in the counseling department, so that they might contact students interested in science careers. As soon as plans are finalized, you will receive additional information. To let us know of your interest, or if you have further questions, contact Diane Clayton at (503) 754-2999.

Cordially,

A handwritten signature in cursive script that reads "Diane Clayton".

Diane Clayton
Symposium Coordinator
Waldo 328
Oregon State University

LETTERS TO OREGON UNIVERSITIES

Office of Educational
Opportunities
Symposium



Corvallis, Oregon 97331 (503) 754-3628 754-2999
"Mother Earth, Father Sky"

February 4, 1977

Mr. John F. Jenkins
Career Planning & Placement
Portland State University
Portland, OR 97207

Dear Mr. Jenkins:

Oregon State University, in cooperation with the National Aeronautics and Space Administration (NASA), is sponsoring a Space Symposium on April 27 and 28, 1977. It will be held in the Memorial Union, on campus. The program will include information about science and engineering careers, as well as a variety of special activities of interest to all. We are especially interested in having women and minority students attend.

We would like to extend a special invitation to students at your university to attend. It is expected that the symposium will attract many interested people throughout Oregon. Please make the invitation and information known to students and faculty, particularly faculty in the counseling department, so that they might contact students interested in science careers. As soon as plans are finalized, you will receive additional information. To let us know of your interest, or if you have further questions, contact Diane Clayton at (503) 754-2999.

Cordially,

Diane Clayton
Symposium Coordinator
Waldo 328
Oregon State University

Office of Educational
Opportunities

Barbra Bowman
Symposium Director



National Aeronautics and Space Administration
Corvallis, Oregon 97331 (503) 754-3523 754-2999

"Mother Earth, Father Sky"

April 11, 1977

As you may be aware, the Educational Opportunities Program at OSU and the National Aeronautics and Space Administration are sponsoring a Space Symposium to be held in the Memorial Union on campus, on April 27 and 28, 1977. The program on April 28 will be directed toward high school, college and university students.

The intent of the program is to present information that might interest students in pursuing careers in the areas of science and engineering. Registration will be from 8:30 ~ 9:30 am. The program will begin at 9:30 am and conclude at 3:15 pm. The format will include 2-3 large group sessions and several small group sessions. There will be approximately 17 small group presentations from which students will be able to select six, according to their interests. These small group presentations are in the fields of biological science, environmental and physical science, aerospace science, engineering, and computer science. Special features will be an address by an astronaut, displays and exhibits, and a mock-up of the space shuttle. Additionally, there will be teaching-learning materials and ideas available for teachers who attend the symposium.

Transportation and lunch arrangements for Special Services community college students will be coordinated by Patty Eberhardt, Director of Special Services, OSU. If you need further information, please call her at 754-4373. We hope you and some of your students will be able to attend.

Cordially,

A handwritten signature in cursive script that reads "Diane Clayton".

Diane Clayton
Symposium Coordinator

DC/jm

Office of Educational
Opportunities
Symposium



Corvallis, Oregon 97331 (503) 754-3628 754-2999
"Mother Earth, Father Sky"

February 7, 1977

Dr. Solon Stone
Assistant Dean of Engineering
Oregon State University
OSU Campus

Dear Dr. Stone:

May I take this opportunity to inform you that an office for the NASA Symposium to be held April 27 and 28, 1977, on the OSU campus has been officially established. A full-time coordinator and secretary have been employed to work on planning and organization.

The office is in Waldo Hall, Room 328, Oregon State University. We plan to keep you informed of the status of plans for the symposium. If we can be of assistance in answering any questions you might have, please contact Diane Clayton, Symposium Coordinator, at (503) 754-2999.

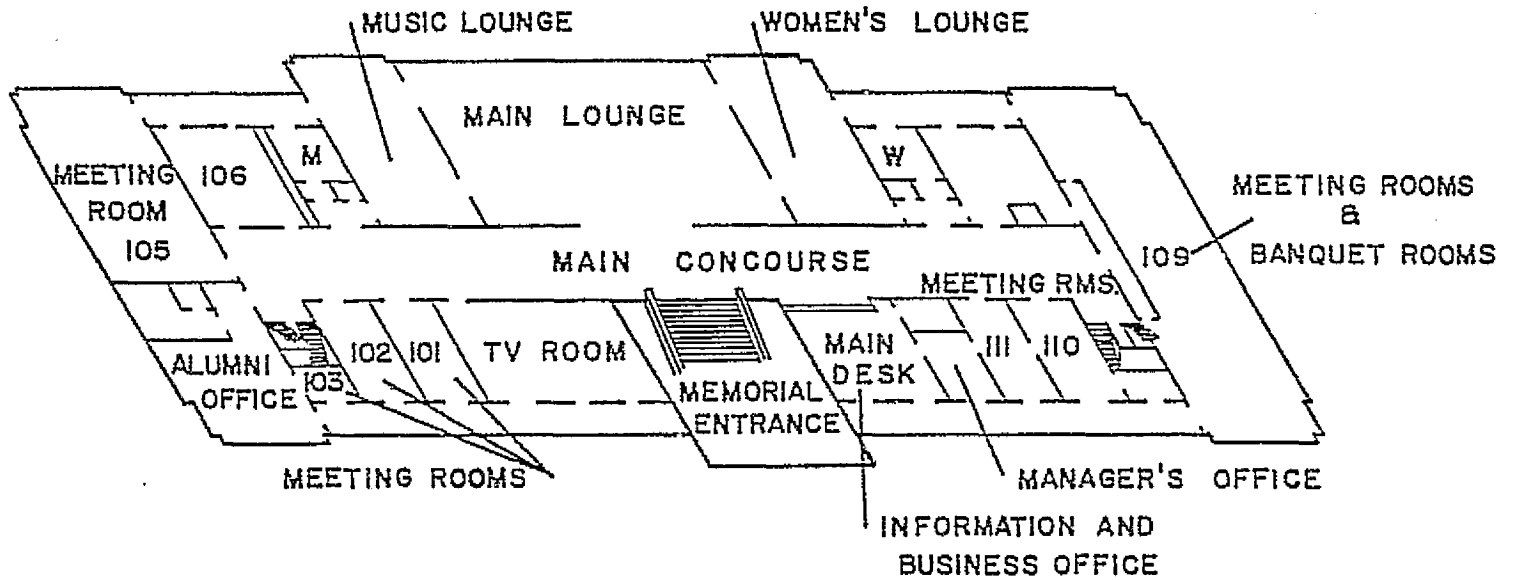
Cordially,

A handwritten signature in cursive script that reads "Diane Clayton". The signature is written in dark ink and is positioned above the printed name and title.

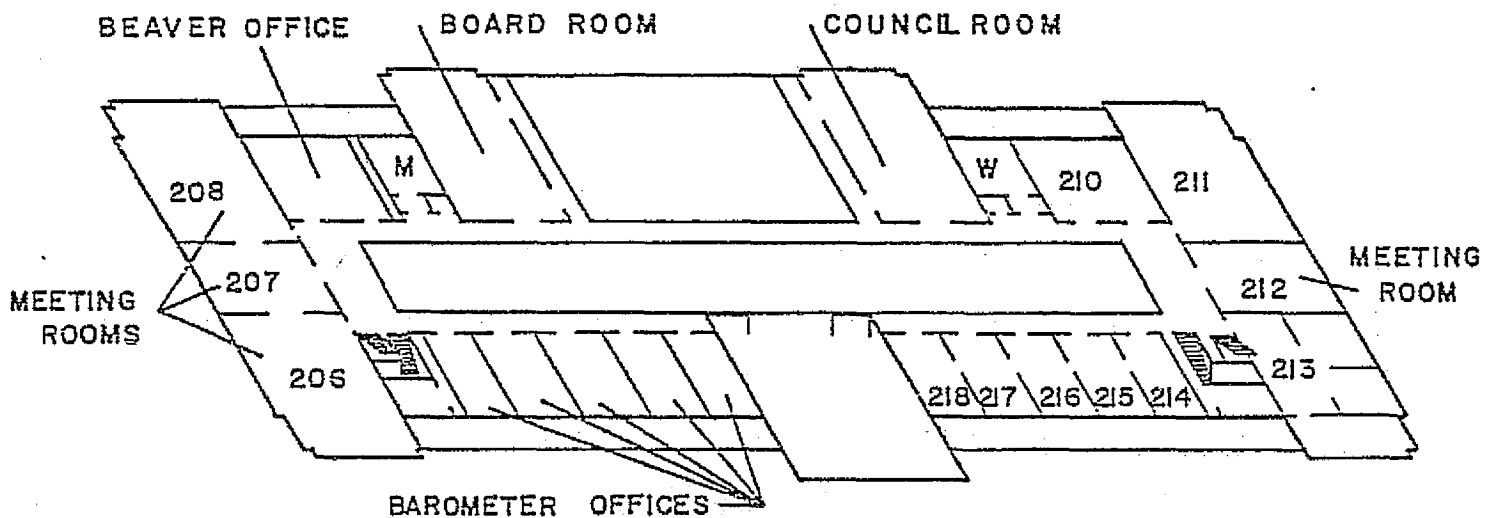
Diane Clayton
Symposium Coordinator

APPENDIX K

FLOOR PLAN OF MEMORIAL UNION



FIRST FLOOR

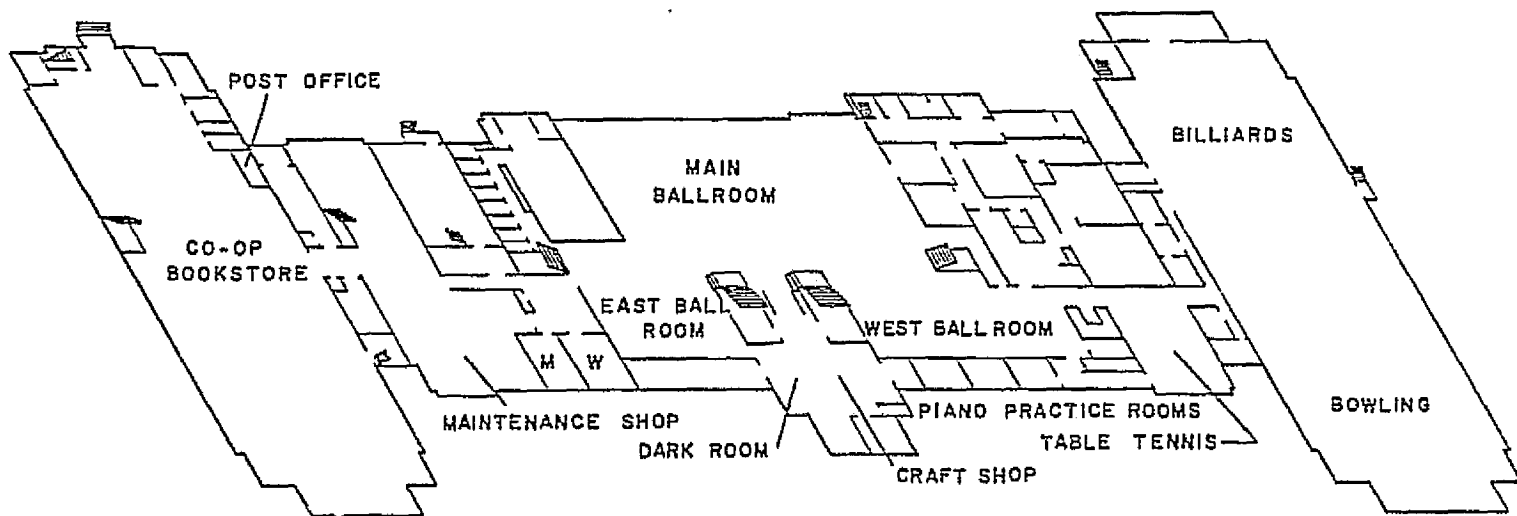


SECOND FLOOR

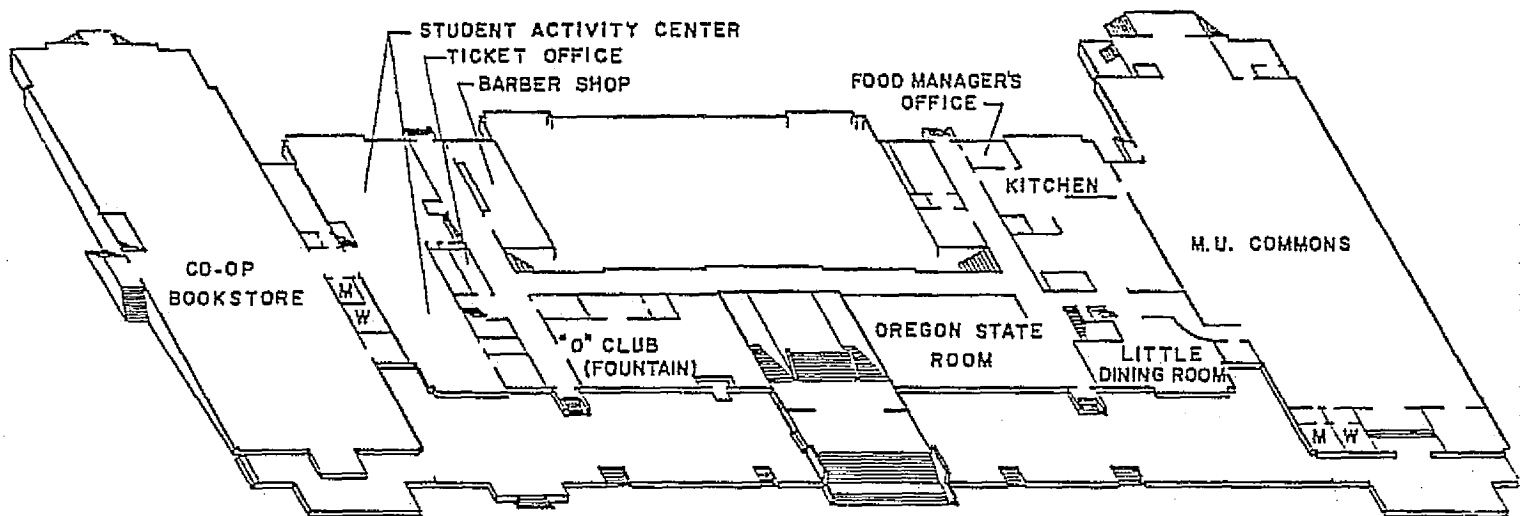
C-2

APPENDIX K

FLOOR PLAN OF MEMORIAL UNION



GROUND FLOOR



MEZZANINE PLAN

APPENDIX L

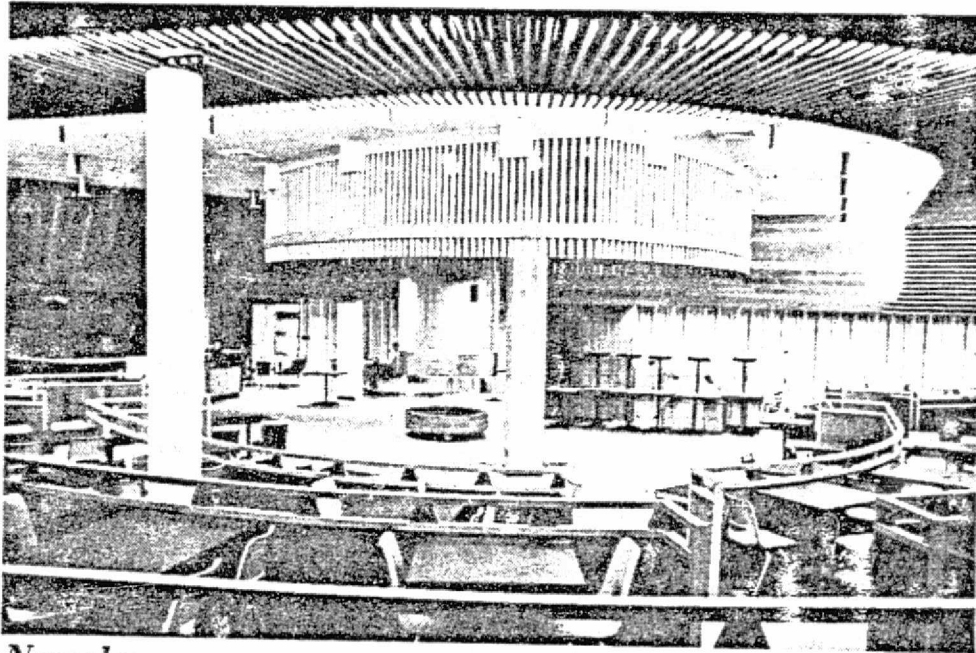
INFORMATION REGARDING SEATING CAPACITY OF SMALL GROUP MEETING ROOMS

ROOM NO.	APPROXIMATE SEATING	GENERAL INFORMATION
Ballroom	600	Used for dances, large conventions and banquets. Rental charges.
East Ballroom	75	
West Ballroom	75	
<u>FIRST FLOOR</u> (102, 103, 106, 110 cannot be re-arranged)		
102	20 maximum	1 conference table, 20 chairs, blackboard
103	12 maximum	1 conference table, 12 chairs, blackboard
105	100-200	144 chairs, classroom style, can be darkened for movie. Screen built in, piano, blackboard
106	20 maximum	1 conference table, 20 chairs, blackboard
110	18 maximum	1 conference table, 18 chairs, blackboard
<u>SECOND FLOOR</u>		
206	88-96	88 chairs, classroom style, can be darkened for movie. Screen, piano, blackboard.
207	50	50 chairs, classroom style, blackboard
208	58-75	58 chairs, classroom style, can be darkened, blackboard, Piano.
Boardroom	30 (44)	30 chairs, conference table, can be darkened, blackboard, 14 extra chairs
Council Room	30 (44)	30 chairs, conference table, 14 extra chairs, can be darkened, blackboard
210	70	50 chairs, classroom style
211	70-80	72 chairs, classroom style, piano, blackboard
212	20	1 conference table, 20 chairs, piano, blackbaord
213B	22	1 conference table, 22 chairs, blackboard
213C	22	1 conference table, 22 chairs, blackboard
214	15 maximum	1 conference table, 15 chairs, blackboard
215	15 maximum	1 conference table, 15 chairs, blackboard
216	15 maximum	1 conference table, 15 chairs, blackboard
217	15 maximum	1 conference table, 15 chairs, blackboard
218	15 maximum	1 conference table, 15 chairs, blackboard
PEAVY LODGE	seat 90 100-150 for reception	Tables and chairs. Fireplace and wood. Telephone. Refrigerator with little freezer. Stove, sink, no hot water. Restrooms. Outdoor barbeque pit.

APPENDIX M

PICTURE OF BANQUET FACILITIES

BANQUET FACILITIES



Nameless

The new amphitheater area located in MU East next to the Gallery needs a name and the MU Food Liaison Committee is sponsoring a naming contest which will last two weeks.

APPENDIX N
LIST OF AUDIO-VISUAL NEEDS

OSU/NASA SYMPOSIUM

April 27-28, 1977
Memorial Union
Oregon State University

Audio-visual Equipment Needs:

<u>Room Number</u>	<u>Equipment Needed</u>
102	16 mm projector and screen
105	35 mm projector and screen, extension cord
106	overhead projector and screen
110	overhead projector and screen
206	-----
207	16mm projector, 35 mm projector, screen extension cord
208	35mm projector and screen
Board Room	16 mm projector and screen
210	35 mm projector and screen
211	screen
212	---
213b	35mm projector and screen
213c	-----
214	screen
215	35mm projector, overhead projector, screen
216	35mm projector and screen
217	---
218	---
STAGE	portable microphone, overhead projector screen

NOTE: Rooms 105, 206, have screens as does the stage area in the main ballroom

West Ballroom

two tv monitors, portable microphone,
TV camera
*3:30 to 5:00 35 mm projector and screen

APPENDIX O

Format for Scheduling Students into Small Group Sessions

pp. 96-102

Utilizing the following charts and schedules, it was possible to give 390 students a personalized schedule based on their career choice. Many students did not indicate a career area preference. These students were given a schedule encompassing a variety of fields.

WEDNESDAY, April 27, 1977

A personalized schedule for 390 students was arranged, with the following career area breakdown:

Biological Sciences - 120
Physical & Environmental Sciences - 90
Aerospace and Engineering - 90
Engineering & Computer Sciences - 90

15 people were each given one of the following small group session schedules.

Legend: C.A. - Career Area
WBR - West Ballroom
MBR - Main Ballroom
Bio - Biological Sciences
PhE - Physical and Environmental Sciences
ArE - Aerospace and Engineering
EnC - Engineering and Computer Science
C.L. - Clarice Lolich, Space Science Lecturer
BR - Boardroom
FIRST CHOICE - BIOLOGY

<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	WBR	Bio	1	WBR	Bio
2	MBR	C.L.	2	MBR	C.L.
3	MBR	C.L.	3	MBR	C.L.
4	214	EnC	4	105	ArE
5	216	Bio	5	214	EnC
6	102	ArE	6	102	ArE
7	105	ArE	7	WBR	ArE

FIRST CHOICE - BIOLOGY

<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	214	EnC	1	216	Bio
2	102	ArE	2	214	EnC
3	WBR	Bio	3	WBR	Bio
4	216	Bio	4	102	ArE
5	105	ArE	5	106	ArE
6	MBR	C.L.	6	MBR	C.L.
7	MBR	C.L.	7	MBR	C.L.

FIRST CHOICE - ENGINEERING & COMPUTER SCIENCE

<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	213b	EnC	1	217	PhE	1	212	EnC
2	MBR	C.L.	2	MBR	C.L.	2	213b	EnC
3	MBR	C.L.	3	MBR	C.L.	3	218	PhE
4	121	EnC	4	213b	EnC	4	208	ArE
5	208	ArE	5	212	EnC	5	207	ArE
6	218	PhE	6	208	ArE	6	MBR	C.L.
7	207	ArE	7	206	ArE	7	MBR	C.L.

FIRST CHOICE - PHYSICAL & ENVIRONMENTAL SCIENCES

<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	218	PhE	1	215	PhE	1	206	ArE
2	206	ArE	2	MBR	C.L.	2	218	PhE
3	215	PhE	3	MBR	C.L.	3	110	ArE
4	110	ArE	4	217	PhE	4	210	EnC
5	210	EnC	5	206	ArE	5	215	PhE
6	MBR	C.L.	6	110	ArE	6	MBR	C.L.
7	MBR	C.L.	7	210	EnC	7	MBR	C.L.

FIRST CHOICE - AEROSPACE & ENGINEERING SCIENCES

<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	102	ArE
2	MBR	C.L.
3	MBR	C.L.
4	206	ArE
5	110	ArE
6	211	EnC
7	216	Bio

<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	106	ArE
2	216	Bio
3	105	ArE
4	218	PhE
5	102	ArE
6	MBR	C.L.
7	MBR	C.L.

<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	210	EnC
2	MBR	C.L.
3	MBR	C.L.
4	207	ArE
5	218	ArE
6	106	ArE
7	110	ArE

THURSDAY, April 28, 1977

FIRST CHOICE - BIOLOGY

<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	MBR	C.L.	1	215	Bio
2	MBR	C.L.	2	102	ArE
3	215	Bio	3	216	Bio
4	102	ArE	4	210	EnC
5	216	Bio	5	MBR	C.L.
6	210	EnC	6	MBR	C.L.

<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	MBR	C.L.	1	102	ArE
2	MBR	C.L.	2	215	Bio
3	102	ArE	3	210	EnC
4	215	Bio	4	216	Bio
5	210	EnC	5	MBR	C.L.
6	216	Bio	6	MBR	C.L.

FIRST CHOICE - ENGINEERING & COMPUTER SCIENCE

<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	MBR	C.L.	1	MBR	C.L.	1	211	EnC
2	MBR	C.L.	2	MBR	C.L.	2	218	PhE
3	213b	EnC	3	214	EnC	3	206	ArE
4	218	PhE	4	206	ArE	4	214	EnC
5	214	EnC	5	213b	EnC	5	MBR	C.L.
6	206	ArE	6	217	PhE	6	MBR	C.L.

FIRST CHOICE - PHYSICAL & ENVIRONMENTAL SCIENCES

<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	MBR	C.L.	1	MBR	C.L.	1	217	PhE
2	MBR	C.L.	2	MBR	C.L.	2	211	EnC
3	217	PhE	3	105	ArE	3	218	PhE
4	211	EnC	4	217	PhE	4	105	ArE
5	218	PhE	5	211	EnC	5	MBR	C.L.
6	105	ArE	6	218	PhC	6	MBR	C.L.

FIRST CHOICE - AEROSPACE & ENGINEERING SCIENCES

<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>	<u>Period</u>	<u>Room</u>	<u>C.A.</u>
1	106	ArE	1	BR	ArE	1	MBR	C.L.
2	212	EnC	2	207	ArE	2	MBR	C.L.
3	BR	ArE	3	106	ArE	3	207	ArE
4	207	ArE	4	212	EnC	4	BR	ArE
5	MBR	C.L.	5	MBR	C.L.	5	212	EnC
6	MBR	C.L.	6	MBR	C.L.	6	106	ArE

WEDNESDAY SMALL GROUP SESSION SCHEDULE

(B) = Biology

(A) = Aerospace

(E) = Engineering

(P) = Physical Science

MBR = Main Ballroom

WBR = West Ballroom

BR = Boardroom

Room Capacity:	20	30+	20	18	30+	30+	30+	30+	30+	30+	20	22	22	15	15	15	15	30+	300+
Room Number:	102	105	106	110	206	207	208	BR	210	211	212	213	214	215	216	217	218	WBR	MBR
Career Area:	A	A	A	A	A	A	A	A	E	E	E	E	E	B	B	P	P	1-B* 5-A 2-A 6-A 3-B 7-A 4-E	
PERIOD/ # OF STUDENTS	NUMBERS SCHEDULED INTO EACH ROOM																		
1/363	15 5	20	15 5	20	15 5	10	20	20	15 5	20	15 5	15 5	15	15	15	15	15	30	X
2/361	15	7	9	7	15	9	9	9	9	9	7	15	15	7	15	7	15	7	30 30 30 15 70
3/361	15	7	7	15	7	8	8	8	8	8	7	7	7	15	7	7	15	30	
4/355	15 5	15 5	25	15 5	15 5	15 5	15 5	25	15 5	25	15 5	15 5	15	20	15	15	15	20	X
5/360	15 5	15 5	15 5	15 5	15 5	15 5	15 10	25	15	25	15	25	15	15	15	20	15	20	X
6/365	15	7	15	15	7	7	15	7	7	15	7	7	7	7	15	7	15	7	30 15 15 30 85
7/365	15	15	7	15	15	15	7	7	15	7	7	7	7	7	15	7	7	7	

* Number indicates period. Letter indicates Career area

THURSDAY SMALL GROUP SESSION SCHEDULE

Ⓑ = Biology

Ⓐ = Aerospace

Ⓔ = Engineering

Ⓟ = Physical Science

MBR = Main Ballroom

WBR = West Ballroom

BR = Boardroom

Room Capacity:	20	30+	20	18	30+	30+	30+	30+	30+	30+	20	22	22	15	15	15	15	15	300+
Room Number:	102	105	106	110	206	207	208	BR	210	211	212	213b	213c	214	215	216	217	218	MBR
Career Area:	A	A	A	A	A	A	A	A	E	E	E	E	E	E	B	B	P	P	
PERIOD/ # OF STUDENTS	NUMBERS SCHEDULED INTO EACH ROOM																		
1/447	Ⓔ 15	11	Ⓔ 15	11	11	11	11	Ⓔ 15	11	Ⓔ 15	11	11	11	11	Ⓔ 15	11	Ⓔ 15	11	Ⓟ 30 Ⓟ 30 Ⓔ 15 120
2/447	Ⓔ 15	11	11	11	11	Ⓔ 15	11	11	11	Ⓔ 15	Ⓔ 15	11	11	11	Ⓔ 15	11	11	Ⓔ 15	
3/449	Ⓔ 15 5	Ⓔ 15 21	Ⓔ 15 5	18	Ⓔ 15 21	Ⓔ 15 21	36	Ⓔ 15 21	Ⓔ 15 21	36	20	Ⓔ 15 7	22	Ⓔ 15	Ⓔ 15	Ⓔ 15	Ⓔ 15	Ⓔ 15	
4/449	Ⓔ 15 5	Ⓔ 15 21	20	18	Ⓔ 15 21	Ⓔ 15 21	36	Ⓔ 15 21	Ⓔ 15 21	Ⓔ 15 21	Ⓔ 15 5	22	22	Ⓔ 15	Ⓔ 15	Ⓔ 15	Ⓔ 15	Ⓔ 15	
5/451	11	11	11	11	11	11	11	11	Ⓔ 15	Ⓔ 15	Ⓔ 15	Ⓔ 15	11	Ⓔ 15	11	Ⓔ 15	11	Ⓔ 15	Ⓟ 30 Ⓔ 15 Ⓔ 15 135
6/451	11	Ⓔ 15	Ⓔ 15	11	Ⓔ 15	11	11	11	Ⓔ 15	11	11	11	11	11	11	Ⓔ 15	Ⓔ 15	Ⓔ 15	

APPENDIX P

MATERIALS INCLUDED IN REGISTRATION PACKET

pp. 104-111

REGISTRATION INSTRUCTIONS

Please distribute a registration packet to each student from your school. In each packet are:

NAME TAGS:

Please ask students to wear their name tags to assist us in identifying Symposium participants.

STUDENT SCHEDULE - (Small Group Session) - (Book of Tickets)

Students have been scheduled according to their individual registration form, returned to us several days ago. Each ticket in the booklet is marked with a session number and a room number (e.g. - 1 105). This would indicate that the student should go to room 105, first period. If a ticket is marked # 3 & 4, MBR, the student should be in the main ballroom for a large group presentation by Clarice Iolich. Maps of the Memorial Union have been posted in various locations throughout the Memorial Union, to assist students in locating the various rooms. Included in the Ticket Booklet is a ticket for lunch (the ticket with no room designated) and a ticket for the souvenir photograph (00). Photographs will be taken in the Main Ballroom during registration, and at the conclusion of the symposium at 3:15 pm. Students should present these tickets to the person in charge at each area.

LUNCH -

Box lunches will be available in the MU ballroom from 11:50 - 12:25 pm. Tickets must be exchanged for a box lunch. Teachers will eat in the East Ballroom, where a special program has been planned for them.

ADDITIONAL INFORMATION -

Teachers have been scheduled into small group sessions. A booklet of tickets for teachers has been included in this packet. Please assist us in supervision of students by attending the small group sessions as scheduled.

EVALUATION FORMS -

At the conclusion of the day's program (3:00 - 3:15 pm), everyone will meet in the main ballroom of the Memorial Union. Please have your school sit together at this time. Students will be provided with a packet of materials, an evaluation form, and a pencil. Please assist students from your school to complete this form. Then, collect these and leave them on the table near the exit as you depart.

DEPARTURE -

Busses will leave the Gill Coliseum parking area at approximately 3:45 pm. Thank you for your assistance and cooperation. We hope you will enjoy the symposium.

SYMPOSIUM '77

"Mother Earth, Father Sky"

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
EDUCATIONAL OPPORTUNITIES PROGRAM
OREGON STATE UNIVERSITY

April 27-28, 1977

NASA
National
Aeronautics and
Space
Administration

Office of Educational
Opportunities



WEDNESDAY, APRIL 27, 1977
MEMORIAL UNION, OREGON STATE UNIVERSITY

8:30 - 9:30 am REGISTRATION, Main Entrance, M.U.
DISPLAYS & EXHIBITS, Main Ballroom, M.U.

9:30 - 9:45 am WELCOME ADDRESS, Main Ballroom, M.U.
M.C.: Stuart E. Knapp
Dean of Undergraduate Studies, OSU
Speakers: Peter H. Chen, Deputy Assistant
Equal Opportunity Programs
NASA Headquarters, Washington, D.C.
Robert W. MacVicar
President, Oregon State University

9:45 - 10:15 am LARGE GROUP SESSION, Main Ballroom, M.U.
"The Congress & You"
Presiding: Robert W. MacVicar
President, Oregon State University
Presenter: James Weaver, (D. - OR.) 4th District
(Assisted by the Communications
Technology Satellite)

10:15 - 10:45 am LARGE GROUP SESSION, Main Ballroom, M.U.
"What's In It For Me?"
M.C.: Miriam W. Orzech, Director
Educational Opportunities Program, OSU
Presenter: Nichelle Nichols
Motion Picture and Television Actress
Cast from: High School Talent Search, Inc.

11:00 - 11:20 am SMALL GROUP SESSIONS, M.U. Meeting Rooms
(1/2 of the Students)
M.C.: Garth A. Hull, Education Programs Officer
NASA/Ames Research Center
Presenters:

Room 208 "Bending the Future"
Benito Casados, Space Science Lecturer
NASA/Jet Propulsion Laboratory

Room 105 "Me? Aviation? Why Not?"
Calvin Pitts, Aeronautics Lecturer
NASA/Ames Research Center

Room 206 "Industry In Space"
William Horvath, Space Science Lecturer
NASA/Ames Research Center

Room 110 "Science - What's In It For Me?"
Jerry C. Elliott, Aerospace Engineer
NASA/Lyndon B. Johnson Space Center

Room 207 "Medical Tools for Tomorrow"
Salvador A. Rositano, Biomedical Engineer
NASA/Ames Research Center

Room 216 "The Biologist & Planetary Exploration"
Bonnie P. Dalton, Biochemist
NASA/Ames Research Center

Room 106 "The Satellite as a Tool"
Robert Ekstrand, Photographic Engineer
NASA/Ames Research Center

Boardroom "Recognizing Your Opportunities"
Thomas Almojuela, Engineer-Pilot
NASA/Ames Research Center

Room 102 "Exploring Careers With NASA"
Kathy Morehouse, Assistant Personnel Manager
Thomas Nanomantube, Cooperative Education Student
NASA/Ames Research Center

Room 213b "Engineering Careers in Industry"
Todd Lynch, Electrical Engineer
Jeff Smith, Electrical Engineer
Hewlett-Packard

Room 212 "Tomorrow's Opportunity Today"
Glenda Ahlhaity, Community Programs Representative
Marie Trujillo, Community Interface Representative
Rockwell International

Room 210 "Economics Systems & Business"
Jess Arnold, Manager of Community Interface Program
Joe Kerlegon, Manager of Small Business & Minority
Business Enterprise
Rockwell International

Room 211 "A World For Women In Engineering"
Julie Jeppsen
Pacific NW Bell Telephone Company

Room 213c "Chemistry in Industry"
Sid Beckett, Chemist
Georgia Pacific Corporation

Room 214 "Opportunities for Engineers in the Energy Field"
Paul Schaad, Personnel Specialist
Vicki Vandzandt, Personnel Specialist
Eugene Davis, Personnel Specialist
Bonneville Power Administration

Room 210	"Opportunities in Aerospace Industry" George Hickman, Training Manager Boeing Company		
Room 218	"Careers in Forest Recreation Management" Margaret Milliken, Associate Professor School of Forestry, OSU	12:55 - 1:15 pm	<u>SMALL GROUP SESSIONS</u> , M.U. Meeting Rooms Repeat of 12:30 - 12:50 pm Small Group Sessions. Please note change listed:
Room 217	"Daughter Sea" Barbara Sullivan Judy Keser Barbra Dexter Fran Boler Gretchen Schuette Norma Smallbone Priscilla Neuherger Graduate Students, School of Oceanography, OSU	West Ballroom	"Computers & the World of C.O.S.M.I.C." Toribio Gonzales, Computer Scientist NASA/Ames Research Center
Room 215 (AM Only)	"Working With Chemistry" Mary A. Ryan, Graduate Student Analytical Chemistry, OSU	1:20 - 1:40 pm	<u>SMALL GROUP SESSIONS</u> , M.U. Meeting Rooms (1/2 of the Students) Repeat of 12:30 - 12:50 pm Small Group Sessions. Please note change listed:
West Ballroom	"Earth Viewed from Space" Lionel Greene, Jr., Biologist NASA/Ames Research Center	West Ballroom	"Earth From a Different Perspective" Susan Norman, Engineer NASA/Ames Research Center
11:00 - 11:40 am	<u>GENERAL SESSION</u> (1/2 of the Students), Main Ballroom "Identified Flying Objects - Airborne & Space-borne" Presenter: Clarice Lolich, Space Science Lecturer NASA/Ames Research Center	1:20 - 2:05 pm	<u>GENERAL SESSION</u> (1/2 of the Students), Main Ballroom "Identified Flying Objects - Airborne & Space-borne" Presenter: Clarice Lolich, Space Science Lecturer NASA/Ames Research Center
11:25 - 11:45 am	<u>SMALL GROUP SESSIONS</u> , M.U. Meeting Rooms (1/2 of the Students) Repeat of Previous Small Group Sessions. Please note change listed:	1:45 - 2:05 pm	<u>SMALL GROUP SESSIONS</u> , M.U. Meeting Rooms (1/2 of the Students) Repeat of 12:30 - 12:50 pm Small Group Sessions. Please note change listed:
West Ballroom	"From Earth to Venus" Ruben Ramos, Engineer NASA/Ames Research Center	West Ballroom	"Ideas & Tools for Tomorrow" Herbert L. Holly, Technologist NASA/Ames Research Center
11:50 - 12:25 pm	<u>LUNCH</u> Students, Main Ballroom, M.U. Teachers, Room 109 M.U. (Resources for Aerospace Careers)	2:15 - 3:00 pm	<u>LARGE GROUP SESSION</u> , Main Ballroom, M.U. "The Reality of Manned Space Flight" Presenter: Bruce McCandless, Astronaut NASA/Lyndon B. Johnson Space Center
12:30 - 12:50 pm	<u>SMALL GROUP SESSIONS</u> , M.U. Meeting Rooms Repeat of Previous Small Group Sessions. Note Change listed:	3:00 - 3:15 pm	<u>CLOSING ANNOUNCEMENTS</u> , Main Ballroom, M.U. Presiding: Garth A. Hull, Education Programs Officer NASA/Ames Research Center
West Ballroom	"Earth Viewed from Space" Lionel Greene, Jr., Biologist NASA/Ames Research Center	3:15 - 3:45 pm	<u>DISPLAYS & EXHIBITS</u> , Main Ballroom, M.U.
Room 215	"Journey to the Beyond Through the Medium of Chemistry" Chris Pastorek, Graduate Student Chemistry Department, OSU	3:45 - 4:00 pm	<u>BUSES DEPART</u> , Gill Coliseum parking area.

THURSDAY, APRIL 28, 1977

MEMORIAL UNION, OREGON STATE UNIVERSITY

3:30 - 5:00 pm SPECIAL SESSION for OSU staff & students
Main Ballroom, Memorial Union

Demonstration on the use of the Telecommunications
systems for analyzing land resources.

Presenters: Robert Hall, Planner
Multnomah County Dept. of Environmental
Services, Portland

Timothy Healy, Professor of Electrical
Engineering, University of Santa Clara,
Santa Clara, California

Dennis Isaacson, Director of Tansy
Ragwort Control Program, Oregon
Dept. of Agriculture, Salem

Barry Schrumpf, Director of Environmental
Remote Sensing Applications Laboratory,
Oregon State University, Corvallis

Ralph Shay, Assistant Dean of Research
Oregon State University, Corvallis

(Assisted by the Communications Technology Satellite)

7:00 - 9:00 pm EVENING SESSION for the community, Main Ballroom, M.U.
"The Reality of Manned Space Flight"

Presenting: Bruce McCandless, Astronaut
NASA/Lyndon B. Johnson Space Center

Browsing time: Exhibits & Displays

"I KNOW MY RACE MUST CHANGE, WE CANNOT HOLD OUR OWN WITH THE
WHITE MAN AS WE ARE. WE ONLY ASK AN EVEN CHANCE TO LIVE AS
OTHER MEN LIVE."

CHIEF JOSEPH OF THE NEZ PERCES
JANUARY 14, 1879

8:30 - 9:30 am REGISTRATION, Main Entrance, M.U.

DISPLAYS & EXHIBITS, Main Ballroom, M.U.

9:30 - 9:45 am WELCOME ADDRESS, Main Ballroom, M.U.

M.C.: Richard Pizzo, Director
Office of High School - College Relations

Speakers: Peter H. Chan, Deputy Assistant
Equal Opportunity Programs
NASA Headquarters, Washington, D.C.

Fredrick J. Burgess
Dean of the School of Engineering, OSU

9:45 - 10:15 am LARGE GROUP SESSION, Main Ballroom, M.U.
"What's In It For Me?"

M.C.: Stuart E. Knapp
Dean of Undergraduate Studies, OSU

Presenter: Nichelle Nichols
Motion Picture and Television Actress

Cast from: High School Talent Search, Inc.

10:15 - 10:55 am LARGE GROUP SESSION, Main Ballroom, M.U.
"The Reality of Manned Space Flight"

M.C.: Jerry C. Elliott, Aerospace Engineer
NASA/Lyndon B. Johnson Space Center

Presenter: Bruce McCandless, Astronaut
NASA/Ames Research Center

11:00 - 11:20 am SMALL GROUP SESSIONS, M.U. Meeting Rooms
(1/2 of the Students)

M.C.: Garth A. Hull, Education Programs Officer
NASA/Ames Research Center

Presenters:

Repeat of Wednesday Morning Sessions. Please note
changes as listed:

Room 215

"Careers for Women In Science"
Ann Brodie, Biochemist, OSU
Janet Cardenas, Biochemist, OSU
Lynn Barber, Microbiologist, OSU
JoAnn Leong, Microbiologist, OSU
Paula Kanorek, Statistician, OSU
Helen Lowry, Statistician, OSU

Room 213a

"Engineering Careers in Industry"
Doug Collins, Electrical Engineer
Dave Lowe, Electrical Engineer
Hewlett-Packard

11:00 - 11:40 am GENERAL SESSION (1/2 of the Students), Main Ballroom
"Identified Flying Objects - Airborne & Space-borne"

Presenter: Clarice Lolich, Space Science Lecturer
NASA/Ames Research Center

11:25 - 11:45 am SMALL GROUP SESSION, M.U. Meeting Rooms
(1/2 of the Students)

Repeat of Previous Small Group Sessions.

11:50 - 12:25 pm

LUNCH

Students, Main Ballroom
Teachers, Room 109, M.U. (Resources for Aerospace
Careers)

12:30 - 1:05 pm

LARGE GROUP SESSION, Main Ballroom, M.U.
"The Space Transportation System"

Presenter: Isaac T. Gillam
NASA/Dryden Flight Research Center

1:15 - 1:35 pm

SMALL GROUP SESSIONS, M.U. Meeting Rooms

Repeat of Morning Small Group Sessions

1:40 - 2:00 pm

SMALL GROUP SESSIONS, M.U. Meeting Rooms

Repeat of Morning Small Group Sessions

2:10 - 2:55 pm

GENERAL SESSION (1/2 of the Students), Main Ballroom
"Identified Flying Objects - Airborne & Space-borne"

Presenter: Clarice Lolich, Space Science Lecturer
NASA/Ames Research Center

2:10 - 2:30 pm

SMALL GROUP SESSIONS, M.U. Meeting Rooms
(1/2 of the Students)

Repeat of Morning Small Group Sessions

2:35 - 2:55 pm

SMALL GROUP SESSIONS, M.U. Meeting Rooms
(1/2 of the Students)

Repeat of Morning Small Group Sessions

3:00 - 3:15 pm

CLOSING ANNOUNCEMENTS, Main Ballroom, M.U.

Presiding: Garth A. Hull, Education Programs Officer
NASA/Ames Research Center

3:15 - 3:45 pm

DISPLAYS & EXHIBITS, Main Ballroom, M.U.

3:45 - 4:00 pm

BUSES DEPART, Gill Coliseum parking area.

ACKNOWLEDGEMENTS

Willie White, Symposium Director, NASA

Rosco Monroe, Symposium Assistant Director, NASA Headquarters

Barbra Bowman, Symposium Director, Oregon State University

Connie Fullerton, Symposium Publicity

Lonnie Harris, Counselor/Recruiter, E.O.P., Oregon State University

National Aeronautics and Space Administration

Oregon State University Staff

Oregon State University Advisory Faculty

OSU - Educational Opportunities Program Staff & Students

Oregon State Department of Education Advisory Staff

Institute for Public Affairs Research, Inc.

Rockwell International

Hewlett Packard Corporation

Boeing Company

Bonneville Power Administration

Pacific Northwest Bell

Georgia Pacific Corporation

Women in Engineering

Association for Women in Science

Black Student Union, OSU

Chicano Student Union, OSU

Native American Indian Club, OSU

High School Talent Search, Inc.

Rockwell Exhibit:

Pam Atkins
Ramona Foley
Curtis Grunnel

Harry Thomas
Charles R. Toledo

Addendum to Schedule

Wednesday

- * Page 1, Peter H. Chen, Deputy Assistant Administrator
- * Time Changes: 8:30 - 9:40 a.m. Registration
9:40 - 9:55 Welcome
9:55 - 10:35 Stage Presentation
10:35 - 11:45 Small Group Sessions
- * No "The Congress & You" - Congressman James Weaver
- * No Communications Technology Satellite - but will have videotape presentations in West Ballroom with "Live" audio interaction with the presenter.
- * Period 7 - 1:45 - 2:05 - No session scheduled for West Ballroom
- * Substitute for Sal Rositano, Room 207 - Ralph Pelligra
Medicine/Engineering
Simulation Science Division
NASA/Ames Research Center
- * Room Change: Room 106 - "Me? Aviation? Why Not?"
Calvin Pitts
Room 105 - "The Satellite as a Tool."
Robert Ekstrand
- * No Presentation in Room 213C
- * Teacher lunch in West Ballroom, not Room 109
- * No 3:30 - 5:00 Special Session for Oregon State University Faculty and Students

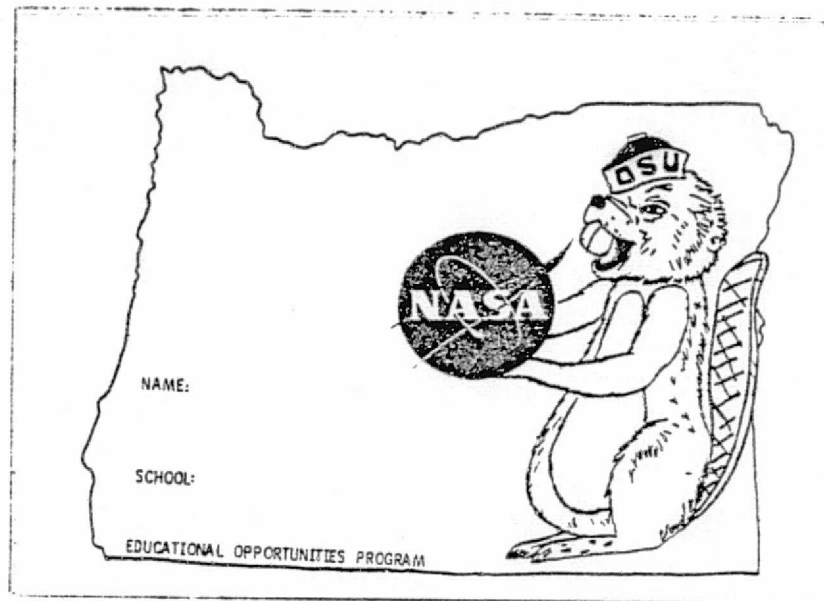
Thursday

- * Room Change: Room 213a to Room 213B - "Engineering Careers in Industry"
Hewlett-Packard

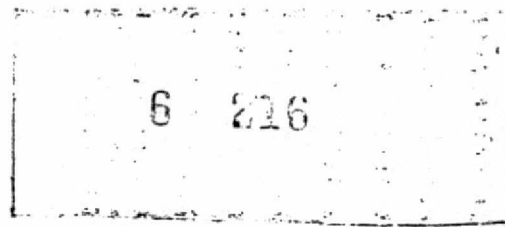
NOTE: If tickets are lost, please come to the Main Registration Desk, near the main lounge, in the Memorial Union. Admittance to small group sessions is by ticket only.

ACKNOWLEDGEMENTS: Henderson's Business Machines

REGISTRATION MATERIALS

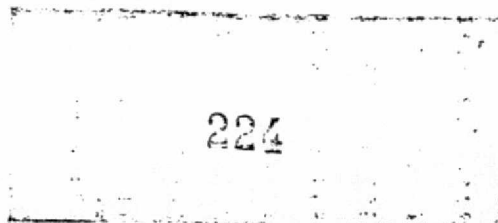


Name Tag.

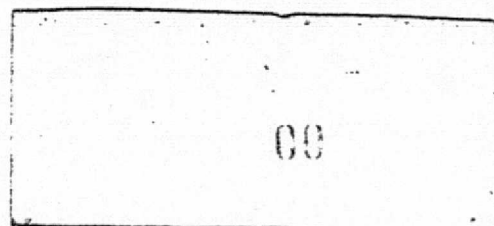


Small Group Session Ticket.

6 indicated period number. 216 indicates room number.



Lunch Ticket.



Souvenir Photograph Ticket.

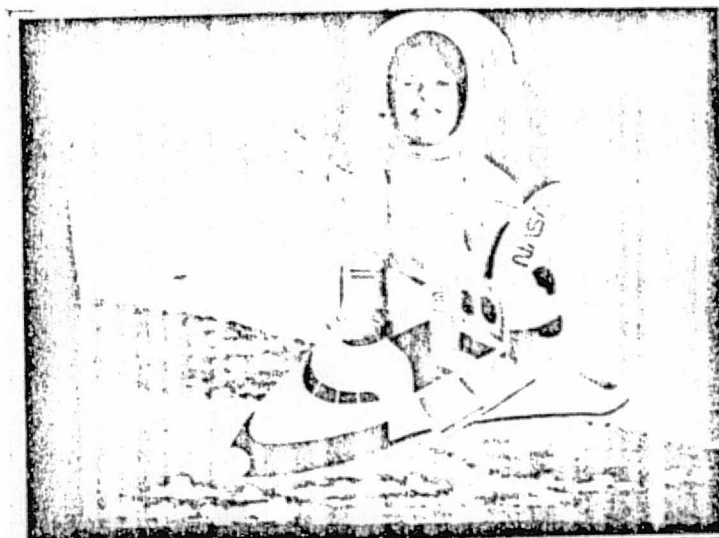
Welcome to "Mother Earth - Father Sky",
a look at education and career opportunities
in the world of aeronautics and space technology.

We hope to show you
how your present and future education
can help you get a share of
the excitement of working with technology.

This souvenir is a reminder
that for you . . .
the sky is no limit.

National Aeronautics and
Space Administration

Oregon State
University



Souvenir Photograph and Frame

ORIGINAL PAGE IS
OF POOR QUALITY

EVALUATION
FORM:

EDUCATIONAL OPPORTUNITIES PROGRAM

OSU/NASA SYMPOSIUM

Memorial Union

April 27 and 28, 1977

A. Please check the appropriate boxes:

1. ☐ Female 2. ☐ Male
 3. ☐ Jr. High Student 4. ☐ Sr. High Student 5. ☐ College/Univ. Student
 6. ☐ Jr. High Teacher 7. ☐ Sr. High Teacher 8. ☐ College/Univ. Teacher
 9. ☐ Other _____

(Counselor, parent, administrator, etc.)

B. Listed below are the various parts of the program. Would you evaluate each presentation based on the items listed directly below.

Mark a 1, 2, or 3 in each column, for each program part. A rating of 1 is high and a rating of 3 is low.

1 = high rating

2 = average rating

3 = low rating

	Informative	Interesting	Easily Understood	Many Opportunities for Questions	Made me want to enter a science career.
a. Dramatic Presentation					
b. Displays and Exhibits					
c. Small Group Presentations					
d. Large Group Presentations					

C. Please check yes or no:

Yes No

- ___ ___ 1. If you have not completed college or are not already in college, do you plan to attend college?
- ___ ___ 2. Have you already decided on your career?
- ___ ___ 3. Did this symposium make you consider science or engineering as a career?
- ___ ___ 4. If you had an opportunity to attend a similar conference in the future, would you?
- ___ ___ 5. Would you recommend that other people attend this type of symposium?
- ___ ___ 6. Do you think that the symposium goal of attracting minority and women students into science and engineering careers was successful?

D. Please make comments and/or recommendations on this or future symposiums:

APPENDIX S

EVALUATION FORM COMMENTS

pp. 115-134

EVALUATION FORM COMMENTS

JUNIOR HIGH TEACHERS, FEMALES

Need better organization - speakers were excellent, but had too little time to do their thing. I wouldn't be surprised if the speakers felt they had wasted their time. 2) Speech by astronaut was excellent, but audience was rotten - should have crowd control - don't have speeches in room where people are wandering around. 3) Lunch break too short 4) Who wants to listen to a tape at lunch???? 5) Many speakers used vocabulary above junior high level. 6) Would love to have a conference like this for teachers without the kids - or have it for interested and gifted students who can really benefit from it.

Am bored by overemphasis on minorities. Many of my students felt it said "if you're not a female or a minority forget it because that's what we're looking for." A better goal would be to attract any capable youth and not discourage those youngsters who have goals of a scientific future by actively seeking a specific category of person for training.

Large group speakers were not clearly understood - lack of adequate acoustic system. Teachers lunch was "crowded" with a messy box lunch which was greasy and having to pass around (by hand) materials.

1) Allow participants to choose to attend sections of their special interest. 2) Put Clarice Iolich and her materials in an area with less distractions than a room like the Main Ballroom. Excellent presentation! 3) It was suggested by one of the students to have the opportunity to construct and handle models. 4) I was impressed with the friendliness and warmth of NASA representatives. Their enthusiasm is infectious!! 5) Repetition of topics was valuable. 6) Better guidance and direction was needed for youngsters (many).

Small group evaluation:

Rm 206 Bill Horvath - interesting presentation. Excellent presentation for junior high students.

Rm 208 Bending the Future - An interesting approach - especially made career possible for those who may not have the money.

Rm 207 Medical Tools - Another excellent presentation

EVALUATION FORM COMMENTS

JUNIOR HIGH TEACHERS, MALES

10-4

An excellent Experience

Excellent concept and program. However, too much moving around (photographers, etc., etc.) and equipment not functioning correctly.

Some of the sessions were excellent. However, you need to relate the information to the potential careers as might be seen by the students. The Main Ballroom was not the best location for the general session as it was hard to hear the speaker.

Dont' spend so much time at beginning session introducing people in audience - too boring for kids - unnecessary to waste time feeding egos. Schedule sessions more accurately - There were two different schedules being used in morning, which caused confusion. Brief speakers better on what to expect. Advise them not to "talk down" to students. More stress on personal careers and everyday job routine would spark interest.

The goal seemed to be on getting info out rather than relating to individuals. The organization was poor. Timing, room changes, and faulty equipment errors were in excess. The idea was great. The execution stunk. The selection of the OSU Main Ballroom was also poor due to the noise factor.

Poorly organized, in general my students were bored, and did not attend presentations. A great resource, very poorly used.

I felt it was disorganized. Afternoon general session too long, got boring.

Presentations - presented the same materials. What else is new? What about some demonstrations where the audience becomes involved?

Many of the students attending symposium were kids that some of the schools wanted to get rid of for the day.

Send info to science teachers not to schools or school districts

Too bad the students attending were not more accutely involved in science and academic areas.

EVALUATION FORM COMMENTS

JUNIOR HIGH TEACHERS, UNDESIGNATED SEX

More concise time schedule is needed.

I think the science oriented student would be more turned on by this than the minority students. Too much distracting noise from hallways during the large group sessions.

For junior high students the presentations need to be more intense and dramatic - sitting and listening all day is too much for this age group. Field trips to the available science labs would have been just as informative and would help break up the day. Most of the language was above the kids heads.

Program was slow in getting started and many junior high age students became quickly bored. After the program started moving, however, interest picked up and the students became interested and got into the symposium.

EVALUATION FORM COMMENTS

JUNIOR HIGH, FEMALES

GENERAL, POSITIVE:

Science and space are interesting. It was fun.

I think there should be more symposiums in the future. It was very interesting, fun, and exciting.

I think it would be a very good idea! (to have future symposiums)

It was a complete success! I enjoyed it very much, and I learned alot. I plan on being an astronaut.

It was very interesting and coming here made me more interested in college!

What you have done is very encouraging, educational and exciting. I liked it very much and really enjoyed myself. Thank you for having me.

I did enjoy this year's symposium.

It was very interesting. I know alot more than I did when I came. Thank you for the opportunity!

It was interesting.

I think it was very good.

I really enjoyed this and am planning on going to OSU. It was very informative. GREAT!

The symposium was very interesting.

This was very interesting. I would like to see more of them.

It was very interesting and I think I learned alot.

This symposium was a good experience.

I think that this symposium was a very good experience for me.

I think it was a very interesting and fun experience. We learned many new things.

It made science seem more interesting and showed what science is about.

I thought that it was a lot of fun. But that it wasn't as fun as it could have been.

(Female, Junior High Students)

I thought it was very interesting and it got me interested in the NASA program.

I've enjoyed this very much and I hope you have more in the future.

It would be nice to have more in the future.

They should come out to OSU and do it more often.

I think it was very good, especially the drama presentation. It was FANTASTIC!!!

I really liked the play.

They should have more Star Trek people for guest speakers.

I think the dramatic presentation was the best. It was a fun way of giving information about science and was my favorite part of the whole day.

SMALL GROUP PRESENTATIONS:

Easily understood

Movies on becoming engineers for women was OK

Some were interesting.

I enjoyed the small group sessions.

I liked the small group presentations better.

Longer class periods should have been offered.

Make the class periods longer.

Need more time in small groups

Longer small groups.

Maybe if possible they could be longer.

Try to not make them so boring but put more ideas and not repeat the stuff in the small groups over and over again.

MINORITY EMPHASIS:

Do not just concentrate on the minorities but everyone.

I think you shouldn't just concentrate on the minorities, but everyone.

(Female, Junior High Students)

I don't see why people are so hyped on getting minority and women.

EASILY UNDERSTOOD:

Some of the things I could not understand.

Make classes a little more understanding.

I hope that it would make it livelier, to focus our attention. Lots of students were bored because several presenters presented vague, complicated things.

In many small groups the people lecturing were talking to us, using words we'd never heard of before so we were a bit confused about what they were saying. The movies and slides were great.

Make a little more easier to understand.

Some of the material was hard to understand (That is why some people were bored)

It was fun, but sometimes they used big words.

SUGGESTIONS AND COMMENTS:

A few things were boring, but more of them were interesting.

In places it was somewhat boring.

It was okay, but the large group sessions were a wee bit boring. OSU is a really beautiful college.

Boring.

I think that the astronaut should of talked more about his own experiences as an astronaut. It would be more interesting.

The large groups were sort of long.

Not as long large groups and longer small groups.

Not so much time spent in the large group.

Louder. Too long.

I want to have a good speaker and shorten the time.

The only thing that should be different is when that guy speaks.

(Female, Junior High Students)

In the large groups the speeches were hard to hear, but the films and small group speakers were easily understood.

(include) a map of the University

There aren't many women on the NASA Team.

Needs to be more organized.

A definite time schedule was not given. Class times overlapped. Otherwise I thoroughly enjoyed it.

I really like OSU. I would like to see the whole thing.

The lunches were good!

I think science is very interesting, but going to other planets is stupid. I don't think God wants us to go to other planets. If He did, He would make it more easier for us to go to other planets.

It was a hot day so I didn't enjoy myself very well.

I hope that I may come to this college. It's great!!!

EVALUATION FORM COMMENTS

JUNIOR HIGH, MALES

GENERAL, POSITIVE:

I learned quite a few things. I think that it is fine as it is. The infrared pictures were very interesting.

Have some more!

It was interesting at most times but some things weren't.

I think it was very good, especially the exhibits.

I would recommend it for younger people too except the large group presentations.

I think you should have them more often.

I loved it!

It's neat! Invite Kennedy (Jr. High) again!

I like the way it is.

Thank you!

I like it. It was very informative, interesting, and fun (Spock would say it's fascinating). I liked how NASA showed no "predgedism." I also liked how Star Trek fitted in (its a show people can relate to).

I liked it. I learned a lot. Future symposiums would be a good idea.

It was fun, especially lunch.

It was good. You can learn more. The speakers were great.

I think it was very interesting. Thank you.

SMALL GROUP PRESENTATIONS:

The classes were a surprize to me as to my selections of interest.

Longer time in classes. Too short.

You should have people that are interested in space, flying, etc., etc., and I think there should be small groups not large ones. Because you can understand better in small groups.

(Male, Junior High Student)

No comment except that the student didn't have a choice on classes.

I like it except for some of the small group presentations were boring.

I liked the small groups. I thought they were very informative. The large group presentations should talk about new material rather than what we heard in small groups.

ORGANIZATION:

Was very messy and poorly presented. More time should have been allotted to classes. Equipment should have been in operation.

I would be more fun if time is lengthened so that we can discuss more deeply into the subject. Everything else was excellently performed.

More organized.

They should have the class sessions more organized.

Put it in an organized way.

I suggest that future symposiums be better organized.

Wasn't very organized. A lot of noise in main ballroom during presentation. Milk was warm, lunch was cold. Plenty of handouts. Some good presentations.

There should be longer sessions and be more informative.

Hold in a place away from other people, and with some way of telling when each session is/should be over.

Could be made easier with demonstrations. More sound from speakers.

Too loud in background!

Better communications (couldn't hear good enough)

Have a bizzer system so the students and teachers know when to change classes and start classes.

The classes should have a bell to end and start each class.

SUGGESTIONS & COMMENTS:

Would be nice if you had more exhibits.

(Male, Junior High Student)

At times they shouldn't talk as much, and should have more displays.

More models and things for displays and exhibits.

More opportunities to just talk to people involved.

They can tell you more about science in space. I think it's very interesting to know more some other things.

Should have more to do with ships and engineering.

This was rotten

Astronauts talk was half hour too long.

EVALUATION FORM COMMENTS

HIGH SCHOOL ASSOCIATED ADULTS, FEMALES

Please come to Portland area soon. Well worth my time. Thank you all.

Lunch poor! Large areas need better acoustics. Some speakers couldn't adjust to teen-age level too much too fast.

Thank you for the day. Earlier information and final plans confirmations.

Found the small sessions very worthwhile - C. Lolich excellent, but conditions for her presentation poor (people in exhibit area very noisy).

EVALUATION FORM COMMENTS

SENIOR HIGH TEACHERS, MALES

More biology sections. Better accoustics for main sections.

I tend to wonder about "reverse discrimination;" I felt that the fact that I am white and male makes me "sub-standard." I realize this symposium was for females and minorities, but the majority of scientists will remain, for several years, white and male.

The physical facilities were woefully inadequate. The noise level was unacceptable, the small discussion group meeting rooms were too hot and stuffy.

I think the symposium goal (minority education) was admirable but I object to the discrimination against non-minority groups. Being in a non-minority group does not mean students automatically "have it easy" in gaining access to the great amount of information presented. I think I am demanding equal time. We want equality, not reverse discrimination. We should set out criteria in terms of proportionate race numbers, interest, and aptitude potentials. I also objected to transportation arrangements. I realize it is a complicated problem, but a group of about 40 kids and advisors rode 300 miles vesterday in a school bus. I don't think a cruiser would have been too much to ask. Also, my group of 14 kids for which I was responsible, was in 4 different locations with little supervision. Put groups together! (referring to housing on campus) A little more coordination was needed. I think the symposium was highly successful even though I have been critical. As an educator I benefitted by gaining resources and future contacts. I hope this becomes an annual affair and hope to send kids and a career counselor next year.

This type of presentation should not be restricted to minorities. All students need to be aware of opportunities available to them.

Many of the presentations were blatant propaganda for the aerospace industries. Science and engineering are exciting enough when presented honestly. 2) Your target students (minority and women) may suffer a tramatic shock when they return to the "real world of school" and find out what is really involved in becoming a scientist or engineer. I think the program would be much more appropriate for students who have shown some previous commitment to preparing for such a future.

Some redundancy - large ballroom was far too noisy.

Lengthen time period of small group presentations

EVALUATION FORM COMMENTS

SENIOR HIGH TEACHERS, UNDESIGNATED SEX

What about the majority student?

Increase numbers and times of small group sessions. Decrease the large sessions. Give an hour for lunch! Need time for breaks. Need a M.C. I think intelligence and interest should be the main criteria for selection.

I think selection of students should be principally on basis of scholastic achievement and interest. I feel much of the interest that may be generated by this approach will be lost. Pump priming in education is inefficient except for a few select students. Press coverage was too imposing - one got the feeling the audience was of secondary importance. Small group sessions were good, but many had imposing titles for less imposing presentations such as "Opportunities for Engineering in Energy Field" turned out to be about BPA* "Engineering Careers in Industry" was a description of HP* calculators. Best ones for High School students would be (1) ones that tell of Education programs, work-study, college prep classes, or (2) technical talks on space programs, etc. Small groups best approach. Although I like to see programs to get students involved, I question whether NASA funds should be spent to advertise NASA programs. (I have mixed feelings, as I like NASA programs)

* BPA - Bonneville Power Administration
HP - Hewlett-Packard Inc.

EVALUATION FORM COMMENTS

SENIOR HIGH, FEMALES

GENERAL, POSITIVE:

I enjoyed this and thank you for new ideas in my career.

Although I never had the chance to attend any with chemistry or biological science, which are my prime interests, the ones dealing with space aeronautics were great, since I've really never been into it.

This was a very good learning experience, and really got me thinking about my future.

It was good. Very interesting.

Good learning.

It was pretty good!

It was great - especially liked the idea of having people live in space by the year 2000!

Extremely informative.

I really liked having my picture taken

Well, this is a good opening on what to expect when you do try and get a job.

I had a good idea as to which field I was going to enter. This symposium added to my knowledge of different areas.

Was definitely worth while to find out exactly what NASA had achieved.

I really enjoyed it. It was interesting and very educational!!
I enjoyed the symposium and am considering an engineering or science related career.

I found this symposium very beneficial and interesting, and I consider myself lucky for being selected to attend.

Interesting.

I really enjoyed it and I wish everyone could come.

The highlight of my trip was when my picture was taken. It was nice to walk around OSU.

In general, I thought this symposium was good.

I think a program like this will help others decide on considering of having a career in science and things.

(Female, Senior High Students)

Very interesting was the program. I myself enjoyed it very much. And I won't forget it.

I do feel that this symposium was interesting as well as informative. I hope that in the future other symposiums will be presented!

I wish they could last a whole week instead of just one day.

It was a "lushus" show. I really liked it and I hope they will continue it in the future.

Great

Personally, I have already decided on a scientific career. But I believe that for those who are undecided as to their future, this symposium might well help nudge them into at least thinking about a scientific career. A most enjoyable and informative day. P.S. I appreciate your attitude towards Star Trek. So few understand.

This was or is really interesting. I will be thinking about this. I haven't made up my mind about my future. Now I will be thinking of this for my future.

I think it was very informative and interesting too.

I have no real comment. I think it was well put together.

SMALL GROUP PRESENTATIONS:

Sessions were too short! There should have been more sessions on biological sciences, which was my first choice. I appreciated the friendliness and explanations of the presenters.

I'm an AIFIS exchange student from Turkey for this year. It was really good to see women displayers. To me, especially this attracts minority and woman students into science and engineering careers.

In room 110 for the first session was absolutely fantastic, I loved it. I even stayed there for a second session. I have been trying to find out about the airforce, and that's the main reason I went to this. I enjoyed the 4 session for oceanography but the sessions should be a LOT longer so that they would be more informative. This type of symposium should be held for at least a week. I thought it wasn't going to be too interesting and I'm very ecstatically glad I came. I think it should be an annual event if it isn't already. Thanks.

The people should be able to choose what fields they want to attend beforehand.

Need more time in small groups

(Female, Senior High Students)

Many of the small groups were not adequately presented, i.e. the companies involved were too self centered. The people directly involved in NASA made space more exciting.

The small group presentations were much more interesting and pertinent than the large groups.

The small group sessions were very good.

I think that the person attending should have more chance to choose the presentations he is interested in.

Some of the small group presentations were pretty good. I particularly liked the one on Viking biology and women in science.

Small group presentations given by interesting, intelligent speakers were excellent.

I was interested in the biological aspects and was disappointed in the minimal amount of seminars in this area. I attended only one biological science seminar. The sessions (small groups) were too short.

Allow students to select and attend as many small sessions as possible, as they were the highlight of this symposium.

Need more small group presentations.

ORGANIZATION:

I thought that the large groups were awfully noisy. But very interesting. I liked the play that was presented.

Suggestion: a) small description of the small group presentations, b) the organization and schedule were not too hot - improve them.

Today's large group sessions needed better sound system (microphone). Difficult to pay attention to large group sessions. Impressed with time schedule - always kept pretty close to tentative schedule!

The large group presentations could have been more interesting and short. The films and slides made it interesting. The small group presentations were just great, but they could have been longer. You should have longer for small group presentations. Thank you for having these symposiums.

I think it could get a little more organized in the large sessions. It was a little hard to hear with those microphones.

(female, Senior High Students)

Try to be a little more organized and have better directions which are easier to understand.

I think it should have been a two day program each group.

MINORITY EMPHASIS:

I was disappointed that the non-minority men were excluded. I know several who were interested and were not granted permission by the administration. This is too bad.

I feel that the request for minority groups, while performing some good, brought several young people into the program who weren't genuinely interested. Not only that, but also had no intention of becoming interested.

Some parts of the symposium I didn't enjoy as much, maybe because they were directed too much towards minority students or disadvantaged students.

SUGGESTIONS AND COMMENTS:

The symposium covered the how, where, who, and what questions very well, but barely and usually not at all did it consider WHY, and all the political and sociological questions that could be raised.

Maybe next time you could have a day like today was and then have a 2nd day where the students can do intensive study and gather information on a more specific field.

I wanted to find out more about women astronauts or just find out about what other jobs there are for women.

Needed more actions.

Scholarship information would be nice.

Needs more information on what qualifications you need and just how you go about entering a career in space technology.

The lunch was awful.

I think that this symposium was geared too low on too basic a level. People are capable of handling things on a higher level, and to have it this low made it slightly boring.

Make the discussions more interesting.

The symposium told me nothing I did not already know, with the possible exception of the information concerning the space shuttle.

(Female, Senior High Students)

I'm not really interested in space or aeronautics. There's not much more I can say, I'm not interested.

Need more drama presentations. Put some life into speeches. Lunch needed to be warmer, or something.

Should give us more information on how to, and where to go to apply for entering the NASA space program.

They should be oriented more to tell students how they can begin their education in a particular field.

Perhaps get into the very basics. What you absolutely must have to be in such a field.

EVALUATION FORM COMMENTS

SENIOR HIGH, MALES

GENERAL, POSITIVE:

I think it was good. Got to go!

I think the way in which you set up the classes was very good and they gave a lot of information. I hope you give more of these.

It was a good show. Lovely!

I feel that it was an excellent opportunity for any student interested in science to get sufficient exposure and knowledge of what the field has to offer.

I was greatly informed - I liked the small groups, it made it easier. Clarice Lolich was great at her presentation. Good flicks - bring it back again. I hope that there wasn't a lot of money spent for the propaganda.

This was one of the most enjoyable days of learning experience I've participated in. As Nichelle Nichols - WOW!!

Fascinating and fun.

MORE!!

SMALL GROUP PRESENTATIONS:

Have the small presentations more geared towards careers instead of generalities. Cover the requirements of NASA jobs.

I think meticulous care should be made in order for an individual not to go to the same session twice.

Should let students choose what small group presentations they wish to go to. The program was very informative and interesting.

Some small group presentations that were extremely interesting were too short. I wanted to stay longer! Students should choose their own small group. Have a 10 minute break between arrival and lunch.

MINORITY EMPHASIS:

Get more minorities interested and bring in real astronauts and scientists involved with the space shuttle.

The minorities bit was carried too far. I was under the impression

(Male, Senior High Students)

that you only wanted women and minorities. Isn't that discrimination?

I came because I'm in a class on prejudice. The note you sent out was extremely anti-white male. So I came for a class project.

SUGGESTIONS & COMMENTS:

Shouldn't be as mixed up.

The material presented was interesting, but seemed not to be well coordinated, and was taught at a too basic level. Personally, nothing what so ever new was learned.

The problem with symposiums like this is that they're unreal. All of the neat spectacular achievements are shown, but the "meat" of the career, the type of thing you would actually be doing on the job, is passed over. I recommend more info on actual duties of the career. Day to day work!

1) Keep large groups more isolated. 2) Have some way to "sync" watches.
3) No time to ask questions 2) Too much traffic in and out during presentations because of poor time sessions.

Need the ability of a more open student selection of presentations. Large presentations needs help. Need intimacy and relaxed air of the small ones. Information needs to be much slower. Larger lunch break and more information about the agenda and procedure. The Nichelle Nichols play was informative and an attention getter. The symposium needs presentations of this type.

It was a good idea to have it but some of the large group presentations were long. Should be a little better organized next time.

Needs more go. Get down to the student interests. It was run OK. I wish to be a pilot someday.

Less military, more civilian routes to a career.

Incredible lack of perspective on social implications of technological spending, of attempts by NASA to justify itself and the outlandish spending it is responsible for.

If you're going to have Nichelle Nichols commit herself, and publicize her appearance, you shouldn't let her get away on "other business." That's very bush and I think it put a blemish on your whole program. The exhibits were great.

I felt sort of shut out as a white male member of the symposium. I also think some of the lecturers had their head up their ass. They were not prepared or very well informed on the topic.

APPENDIX T

SPEAKER'S PROFILE

Robert W. MacVicar

Dr. Robert MacVicar is President of Oregon State University, Oregon's oldest public institution of higher learning. He has held this position since July 1, 1970.

He received his bachelor's degree from the University of Wyoming, his master's degree in chemistry from Oklahoma State University, and his doctorate in biochemistry from the University of Wisconsin. He graduated with highest honors from the University of Wyoming in 1939 and was chosen as a Rhodes Scholar. Other positions he has held include Professor of Chemistry, Dean of the Graduate School, and Vice President of Academic Affairs at Oklahoma State University.

Currently, Dr. MacVicar is serving as a member of the American Council on Education's new Commission on Leadership Development in Higher Education. In 1971 he was named to the Oregon Committee for Selection of Rhodes Scholars. Currently he is a member of several professional organizations and belongs to two major academic honor societies, Phi Kappa Phi, and Phi Beta Kappa.

APPENDIX U

SPEAKER'S PROFILE

Peter H. Chen

Mr. Chen is Deputy Assistant Administrator for Equal Opportunity Programs at the National Aeronautics and Space Administration Headquarters, Washington, D.C. He received his Bachelor of Science degree from Howard University, Washington, D.C. and did post graduate work at the American University in Washington. Some of the other positions he has held within the federal personnel management structure are Salary and Wage Analyst with the U.S. Army and Bureau of Prisons, Position Classification and Job Analyst for the U.S. Caribbean Command, and Acting Director of Civilian Personnel for the 15th Naval District.

While in the Canal Zone, Mr. Chen was honored as the "U.S. Citizen of the Year" in 1961.

As Deputy Assistant Administrator for E.O.P., he is responsible to the Assistant Administrator for supervising the effective development and monitoring of a national agency-wide Civil Rights Program.

SPEAKER'S PROFILE

Fredrick J. Burgess

Dean Burgess is Dean of the School of Engineering at Oregon State University.

He received his Bachelor of Science degree in Civil Engineering at OSU and a Master's degree in Sanitary Engineering from Harvard University.

He has also served in the capacity of Acting Assistant Dean of Engineering, Assistant to the Dean of Engineering, and Head of the Department of Civil Engineering. He has been a consultant to various federal agencies such as the U.S. Public Health Service, U.S. Forest Service, and Federal Water Pollution Control Administration.

Additionally, he belongs to several professional societies; has received professional recognition and awards; has served on various committees, commissions, and boards; and has published numerous books and articles in his professional field.

APPENDIX W

COPIES OF NEWS CLIPPINGS AND INITIAL PUBLICITY

PP. 139-147

Careers in space campus topic

OSU and the National Aeronautics and Space Administration will present an April 27-28 symposium on campus for about 800 junior high, high school and community college students, mostly minorities and females.

Barbra Bowman, a member of the university's Educational Opportunities Program, developed the symposium proposal and will be the director. EOP focuses on help for minorities.

Barbra
Bowman



NASA is providing \$28,300 to fund the symposium, plus space shuttle and satellite communications displays and demonstrations.

"The symposium is designed to show females and minorities that there is a place for them in science and engineering, including such sophisticated work as space activities," Mrs. Bowman emphasized.

The April 27 program will be for junior high school students drawn from within a 100-mile radius of the campus, she said. High school and community college students and counselors from throughout the state will participate on April 28.

Career opportunities will be dramatized during the symposium. Mrs. Bowman explained. Nichelle Nichols, one of the stars of the TV space series, Star Trek, will be one of the speakers. An astronaut tentatively is scheduled to participate also.

The OSU symposium is one of the first half dozen of its kind in the country and the first in the far West. Mrs. Bowman observed. The symposium title is "Mother Earth, Father Sky, What's In It for Me?"

OREGON STATER, March 1977, Page 1

Star Trek's Lt. Uhura plans future in space

By Virginia Rankin
Of The Gazette-Times

Lt. Uhura, the beautiful communications officer in the television series Star Trek, usually was pictured quietly pushing buttons at an electronic console. She was an educated, composed and efficient career woman.

Nichelle Nichols, actress, singer and dancer, who portrayed Lt. Uhura on the screen, was in Corvallis briefly Friday. She is an explosive bundle of energy, who came on strong from the moment she gave a hand shake with the grip of an arm wrestler.

She came here with other representatives of the National Aeronautics and Space Administration to complete plans for a two-day space symposium being presented April 27 and 28 in cooperation with Oregon State University.

Nichols said that she was just a shell of Lt. Uhura when she began the characterization with the original Star Trek cast more than 10 years ago.

"The television part just meant a silver Jaguar, a home in Beverly Hills and a neat wardrobe to me at first."

Then, she said she realized that she had a responsibility to get across to others "and that this character and the script was bigger than me and my dreams.

"And that's what this space symposium is all about: to motivate young persons to think, to educate themselves into a useful career, so that they can join a colony out in the galaxies, our new frontier," Nichols said.

Nichols and a partner, Shirley Bryant, two years ago started Women in Motion, Inc., to further equal opportunities for women and minorities. The corporation makes educational films to redirect thoughts toward careers relevant to life in a space colony.

For her part in the forthcoming symposium, Nichols has contracted with NASA to write and direct a drama about how life on earth is interrelated with the space age.

The cast for this drama has been selected from talented teen-agers of all races studying with the Rockwell International Research Center in California.

Working with Nichols on the symposium are Barbara Bowman, recruiting counselor for Coordinated



Gazette-Times Photo by Tom Warren

Nichelle Nichols, Lt. Uhura of Star Trek fame

Education Opportunity at OSU, and Willie L. White Jr., chief of Equal Opportunity Programs at NASA's Ames Research Center, Moffett Field, Calif.

White said that young people need to be exposed to the current space exploration and research to learn how it affects their lives.

"For instance," White said, "The pacemaker used by persons with a heart problems is the result of research conducted at NASA."

At the symposium in April on the OSU campus, the number of career opportunities will be dramatized and there will be displays, such as a

model of a space colony and the space shuttle ship, and different departments of the university will have related exhibits, as will private contractors.

NASA is providing \$28,300 to pay for this symposium, which is one of the first six of its kind being produced in the nation. OSU's is the first one scheduled on the West Coast.

"Preparing ourselves for the future on our frontiers in the galaxies is what it's all about," said Nichols.

She aspires to be aboard that first available shuttle ship, which, she said, will help build a stairway to the stars.

ORIGINAL PAGE IS
OF POOR QUALITY

Star Trekker to beam down in Salem

Salem fans of television's "Star Trek" series will get to meet one of the program's featured players today in the person of Nichelle Nichols, "Lt. Uhuru" of the Starship Enterprise crew.

Miss Nichols is visiting Oregon this week in connection with her current job — public relations for NASA, the

National Aeronautics and Space Administration. She will return to Oregon April 27-28 for a NASA symposium at Oregon State University in Corvallis.

Her visit to Salem will start with an 8:30 a.m. talk to the House Education Committee in Capitol Hearing Room D, followed by a visit to the sessions of both the House and Senate, between

10:30 and 11 a.m., a noon talk in the quad of Chemeketa Community College, a 1:10 p.m. visit to South Salem High School and a 1:45 p.m. visit at Leslie Junior High School. She'll talk to classes at both schools, going to Corvallis on Thursday for more of the same.

Miss Nichols will emphasize education in NASA-related fields of science

and technology during her visit to Oregon, but lists herself as also having careers as an actress, lecturer, composer and entertainer. She's the founder of J'Neste, an organization devoted to the training of women, and Women in Motion, which deals with the "humanization of space." She's also on the board of directors of the National Space Institute.

Oregon STATESMAN 4/6/77

'Star Trek' star visits Salem, promotes space program

By MIKE DuPONT
Oregon Statesman Reporter

More than six years after the popular television series "Star Trek" was canceled, Lt. Uhura of the Starship Enterprise is still exploring strange new worlds.

Nichelle Nichols, who portrayed the female communications officer in that show, was in Salem Wednesday to promote a two-day Space Symposium at Oregon State University April 27-28.

The symposium is expected to bring more than 800 junior high, high school, and community college students to the Oregon State campus to meet with scientists and engineers, who will discuss job opportunities in the space field, said the direc-

tor of the symposium, Barbara Bowman.

In the days following the Star Trek series, Miss Nichols has been active as lecturer, composer, writer and producer, but her current interest is selling the space program to youth.

She sees vast employment opportunities opening up with the initiation of a space shuttle program, especially for minorities and women.

During her tour of the U.S. as a representative of Women In Motion, Inc., and the National Aeronautics and Space Administration, she stresses to youth the importance of math and science in preparation for careers in space research and technology.

Her association with NASA began over a year ago, when she met a NASA representative at a Star Trek convention.

"I had always been interested in science," she said, "but it had no relevance to me, and I had no place in it."

She became quickly convinced of its relevance and opportunities.

Women In Manpower, Inc., is a production film company Miss Nichols formed with Shirley Bryant Keith to make educational-motivational films

for minority youth instruction.

The company is currently producing a half-hour techno-drama to be performed at the symposium. The show will be aimed at capturing youth interest in the space field.

But no matter what she does or where she goes, Nichelle Nichols is remembered as Lt. Uhura.

"Any time you develop a character that strong, it follows you for the rest of your life no matter what you do," she said.

"She is like my great-great-granddaughter. I feel a real attachment and commitment there. I guess she'll always be a part of my life."

"And I think I'd be disappointed if it wasn't that way."

From the Starship

Nichelle Nichols, who portrayed Lt. Uhura of Star Trek, beamed into Salem Wednesday to talk to students about job opportunities in space research and technology. A two-day Space Symposium will be held at Oregon State University April 27-28. More than 800 Oregon junior high, high school, and community college students are expected to attend.

Statements photo by Gerry Lawlin



Astronaut Featured

BAROMETER
April 26

Space Symposium to be held

By MARK FLOYD
Barometer Writer

"Mother Earth, Father Sky", a space symposium, will be held on campus Wednesday and Thursday. The symposium, co-sponsored by the Educational Opportunities Program (EOP) and the National Aeronautics and Space Administration (NASA), is to provide career information and opportunities in conjunction with NASA, according to Barbara Bowman, of the EOP.

The symposium will be attended by junior high and high school students, said Bowman. Small group sessions will be held for the students in various meeting rooms in the MU on both days.

"There will be at least 400 students on the first day and over 500 on the second," said Bowman. "We even had a call from Las Vegas, Nev., from a student who had heard about the symposium and wanted to come to Oregon State."

Featured guests for the symposium will be Bruce McCandless and Nichelle Nichols. McCandless, an astronaut in training for possible selection on a space shuttle flight, will address an evening session on "The Reality of Manned Space Flight" for the public Wednesday from 7 to 9 p.m. in the MU Ballroom. Nichols, known for her portrayal of Lt. Uhura on Star Trek, will make her presentation, "What's in it for me?" to the students both days.

The space symposium is unique in that it is the first of its kind in the West and it's the first time one has been held with small group sessions, according to Bowman. A large number of industries will be present for the small group sessions and invitations have been extended to several people.

"The governor has been invited," said Bowman, "and many people from NASA headquarters in Washington are coming."

"There will also be people from Boeing, Hewlett-Packard, Rockwell International, Georgia Pacific, Pacific Northwest Bell and Bonneville Power."

In addition to the Wednesday night presentation by McCandless, a special session will be held for OSU students and staff from 3:30 to 5 p.m. Wednesday in the MU Ballroom. There will also be exhibits and displays following the presentations.

Bowman emphasized that there are many career opportunities associated with NASA that fall outside the realm of the space industry.

"We think of NASA as just space," she said. "There's all kinds of spinoffs from NASA; medical, land resources. In fact OSU and Ames Research Center (of NASA) are jointly doing land resource projects. The tansy ragwort study is one."

NASA has contracts with universities for qualified students to work as interns, said Bowman. "We've already got an engineering contract with NASA."

Various media have already expressed interest in the symposium, according to Connie Fullerton, publicity director for the symposium.

"We've already been covered on all the talk shows," said Fullerton, "and KGW-TV and KATU of Portland will be covering the symposium."

Community

2—Gazette-Times, Corvallis, Oregon, Tuesday, April 26, 1977

Astronaut will speak at OSU

A symposium about space and career opportunities there for young persons will take place on the Oregon State University campus Wednesday and Thursday.

The program is being sponsored by the university and the National Aeronautics and Space Administration, the latter which has provided \$28,300 to pay for the event.

More than 1,000 high school and community college students within a 100-mile radius of the OSU campus will attend the two-day symposium.

The only event open to the public is a talk by Bruce McCandless who has been a U.S. astronaut since 1966. He will speak from 7-9 p.m. Wednesday in the Memorial Union ballroom. McCandless will speak about "The Reality of Manned Space Flight." He is stationed at the Lyndon B. Johnson Space Center in Houston. Following his talk, the public may view various displays related to space, such as moon rocks brought to earth by the astronauts on the Apollo 15 mission, satellite communications equipment and a space shuttle ship.

Participating in the symposium will be Nichelle Nichols, who portrayed Lt. Uhura on the television series, "Star Trek."

The actress was hired by the aeronautics and space administration to write and direct a drama about how life on earth is interrelated with the space age.

Nichols will bring a group of young actors representing all races and currently studying drama in California under the High School Talent Search, Inc..

Nichols sees space colonies forming a stairway to planets, some of which she believes are inhabited.

"Why shouldn't there be other beings living on other planets? We're here on earth, aren't we?" Nichols said, when she spent a day early in March in Corvallis arranging for the space symposium at OSU.

She hopes to be aboard one of the first space shuttle ships, which will transport earthlings to a station in space where a colony can be established.

The main thrust of the symposium on campus will be to tell and show young persons the many different types of



Bruce McCandless

"We want to make certain that there won't be any racial or cultural discriminations in the space colonies. There will be work for everyone and they can start right now training for whatever type of job appeals to them. The job opportunities are limitless," Nichols said.

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University Associations.

OSU/NASA SPACE SYMPOSIUM

On April 27-28, the Educational Opportunities Program at OSU and the National Aeronautics and Space Administration are co-sponsoring a Space Symposium to be held in the MU on campus. The purpose of the conference is to encourage students to consider science and engineering as possible careers.

Barbra Bowman, a member of the university's Educational Opportunities Program, developed the symposium proposal and will be the director. EOP focuses on help for minorities.

The OSU symposium is one of the first half dozen of its kind in the country and the first in the Far West, Mrs. Bowman observed. The symposium title is "Mother Earth, Father Sky, What's In It for Me?"

For further information, contact Barbra Bowman, Symposium Director, or Diane Clayton, Symposium Coordinator, x2999.

O.S.U. STAFF NEWSLETTER April 25

The Oregon Statesman, Salem, Ore., Wed., April 27, 1977, 38

Space careers meet set



BRUCE McCANDLESS

CORVALLIS — More than 1,000 junior high, high school and community college students — most minorities and females — are expected at Oregon State University Wednesday and Thursday for a Space Symposium emphasizing career opportunities.

The symposium is sponsored by OSU and the National Aeronautics and Space Administration. NASA is providing \$28,300 to fund the event, plus space shuttle and satellite communication displays and demonstrations.

The young people will meet in small groups with specialists from NASA and other government agencies and private industry to learn about career opportunities in science and engineering. Ni-

chelle Nichols, one of the stars of the TV space series, "Star Trek," will be among the speakers.

Only event open to the public will be the Wednesday night program including a talk by Bruce McCandless, 39-year-old NASA astronaut. McCandless will discuss "The Realities of Manned Space Flight" in a 7 p.m. speech in the Memorial Union ballroom.

McCandless is one of 19 astronauts selected by NASA in 1966. He was in the support crew of Apollo 14 mission and was backup pilot for the Skylab mission.

Visitors also will be able to view several NASA exhibits, including the display of a moon rock brought back to earth in the Apollo 15 mission.

OSU plans space symposium

More than 800 Oregon junior high, high school, and community college students will participate in a Space and Engineering Symposium at Oregon State University on April 27 and 28.

The goal of the symposium is to get young people interested in careers in space research and technology said the symposium's director Barbara Bowman.

Ms. Bowman said the first day will be spent working with junior high school students only. The program involves an appearance by an astronaut, presentations of a space shuttle and communications satellite, and workshops where groups of 30 students meet to talk with engineers and scien-

High school and community college students come in the second day for a similar program, she said.

The symposium is being co-sponsored by the Educational Opportunity Program at Oregon State and the National Aeronautics and Space Administration's Aims Research Center at Moffett Air Base in California, she said.

CORVALLIS GAZETTE-TIMES THURSDAY APRIL 28, 1971

Want to get away?

Just wait for 30 years

By Virginia Rankin
Of The Gazette-Times

How about taking the family vacation in space?

Or how about planning a career as a science technician who works in a skylab, positioned in space between the moon and earth?

High school students from the Willamette Valley were told Wednesday that they would have the opportunity to do these things, but not right away.

Bruce McCandless, a 39-year-old astronaut with the space shuttle program of the National Aeronautics and Space Administration, told students that a job in a skylab might be possible within six years, but vacations in space probably won't be a reality for another 30 years.

The students are attending the space symposium on the Oregon State University campus and listening to employees of the space administration.

All the students have to do to become eligible for working in space programs is to acquire at least a bachelor of science degree and, if they want to work in outer space, be in excellent physical condition, they were told.

McCandless said that "living in space in the future will be no different than our life on earth. Here we have to educate ourselves and learn to accept responsibilities. And we are charged with keeping our planet clean and in good working order." The same will apply to life in a space colony, he said.

The astronaut said that the space program has emphasized research space flight and survival but that now there is an effort to develop services to enhance life on earth.

McCandless said, in reference to the energy shortage, "Well, the solution to that is utilizing solar energy."

He explained how satellites could be used to gather solar energy in orbit and beam it down to receiving stations on earth, where the energy could be distributed for use in industries, businesses and residential homes.

He talked of how satellites in orbit gather data on earth by taking photographic images in bands of light and convert the images to radio signals, which are sent to the ground so that computers can reconstruct the images.

McCandless showed slides of converted satellite images. The students saw healthy vegetation in one part of the world, compared to diseased crops, which looked gray instead of green, in another country. He said that a satellite can take visible surveys of every area of the globe every 18 days.

"Being able to take a crop survey consistently throughout the world

SAMPLE OF LUNAR SURFACE



Gazette-Times Photo by Tom Warren.

Rocks brought from 232,000 miles away by astronauts on the Apollo 15 mission were displayed at Oregon State University, where a three-day space symposium for high school students ends today. Moon rocks encased in plastic are in upper right of this picture.

may help mankind avoid disastrous food shortages."

"We also will be able to determine where there are mineral deposits and underground water and how much water to expect from the runoffs of accumulated snow packs."

He said that getting such data today requires many successive aerial photographs as well as sending teams of scientists into the field for gathering information.

McCandless told the students that the National Aeronautics and Space Administration program was costing

about one cent out of every federal dollar spent. He said that the administration's budget for this year is \$3.6 billion.

"Do you think that is expensive? Well how about the \$140 billion budget this year for health and welfare?"

McCandless said that he used to worry about radiation waste materials from nuclear plants on earth.

"But now, with our space shuttle cargo ships, I visualize our taking the 'hot wastes' into space and dumping them. They would be disintegrated by the sun."

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April 29

NASA two-day symposium covers science careers

By JOYCE HABERMAN
Barometer Writer

A two-day symposium, "Mother Earth, Father Sky", sponsored by the National Aeronautics and Space Administration (NASA) to expose primarily minority and women students to careers in scientific and engineering fields, brought nearly 800 to the campus Wednesday and Thursday.

Coming from junior and senior high schools, community colleges and universities in the state, students attended presentations put on by eight industries and several professors from OSU in rooms throughout the MU.

It was the first time a symposium of this sort had been held in the West, according to Barbara Bowman, symposium director and educational opportunity program coordinator. Bowman wrote to NASA in August formally proposing a program like this and asking for funds to support it.

"They liked the idea and agreed to fund it," said Bowman. Only three or four other symposiums directed towards women in the fields

of engineering and science have been held in the nation, said Bowman.

NASA's support, amounting to \$28,300, was used in part to transport, house and provide meals for the students.

Picked by school instructors to attend the symposium, the students listened to presentations that covered topics in aviation, biology, economics, chemistry, planetary exploration and engineering.

At the end of each day, students filled out evaluations expressing their feelings towards the day's presentations.

Saying it was generally positive, Bowman deemed the program "successful".

"Hopefully students will become aware of all the fields open to them," she said. "Maybe they will look more seriously at the math and the science-oriented courses in school now if they are interested in any of these careers."

Companies besides NASA that gave presentations included Rockwell International, Boeing, Hewlett-Packard Corporation, Pacific Northwest Bell, Bonneville Power Administration and Georgia Pacific Corporation.

APPENDIX X

PHOTOGRAPHS

pp. 149-164

SYMPOSIUM DIRECTORS



Willie L. White, Chief, Equal Opportunities Programs Office
National Aeronautics and Space Administration/Ames Research Center

Barbra Bowman, Counseling-Recruiting Coordinator
Educational Opportunities Program, Oregon State University

REGISTRATION FOR NASA/OSU SYMPOSIUM
Memorial Union, Oregon State University



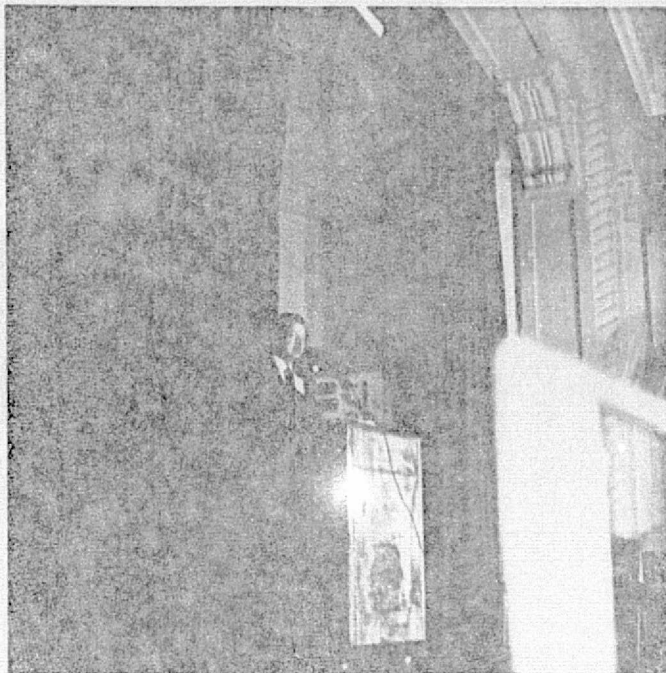
Peter Chen, Deputy Assistant, Equal Opportunity Programs, NASA Headquarters, Washington, D.C. receives registration packet from Judy Murray, Symposium Secretary.



Teachers receiving registration packets at registration table.

Diane Clayton, Symposium Coordinator at registration table.

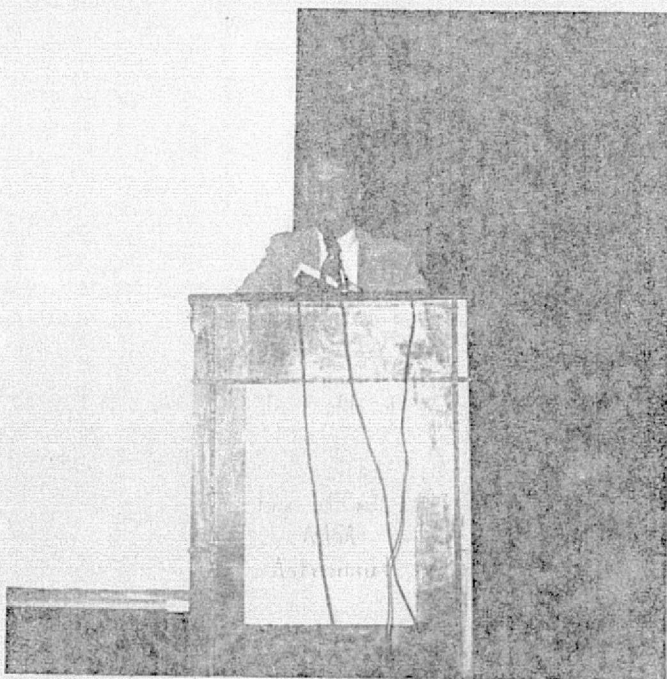
SPEAKERS



Robert W. MacVicar
President
Oregon State University

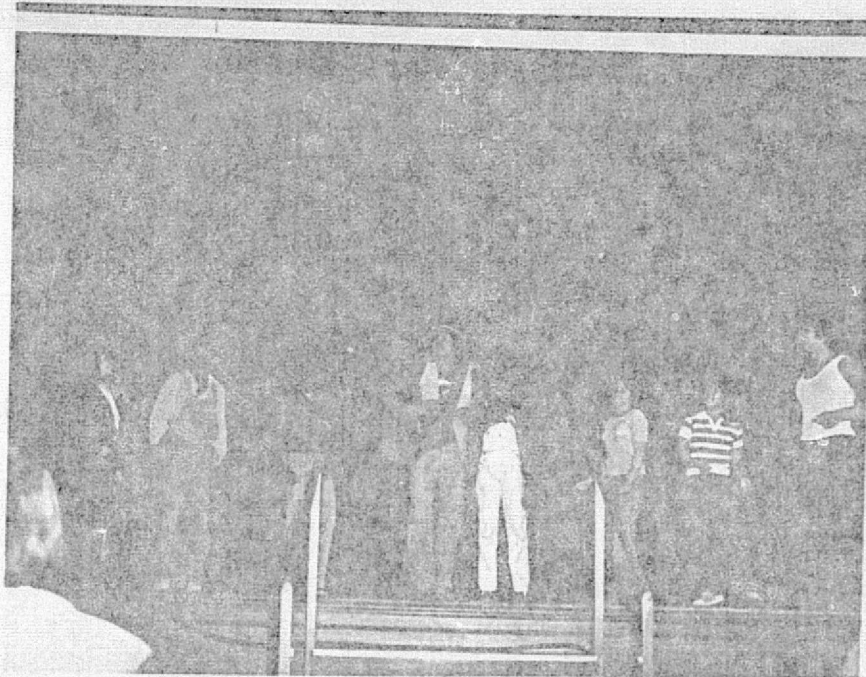


Fredrick J. Burgess
Dean
School of Engineering
Oregon State University



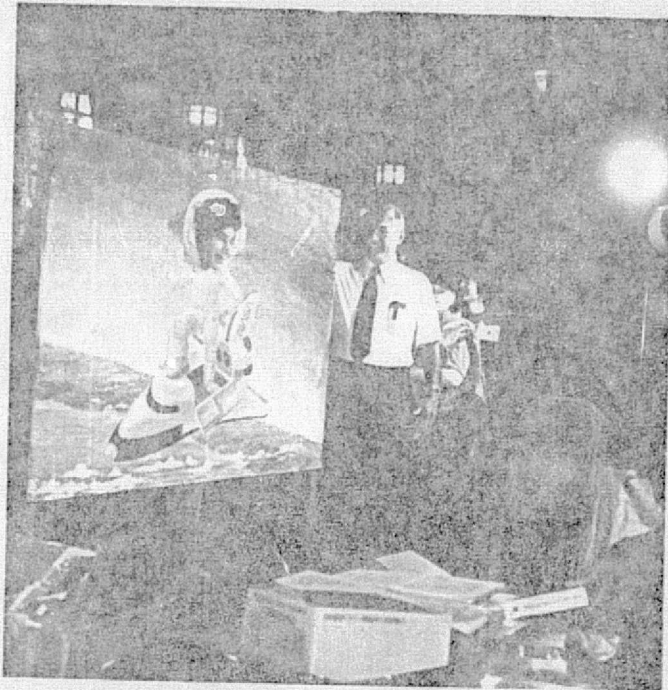
Bruce McCandless
Astronaut
NASA/Lyndon B. Johnson Space Center

DRAMA PRESENTATION
"What's In It For Me?"



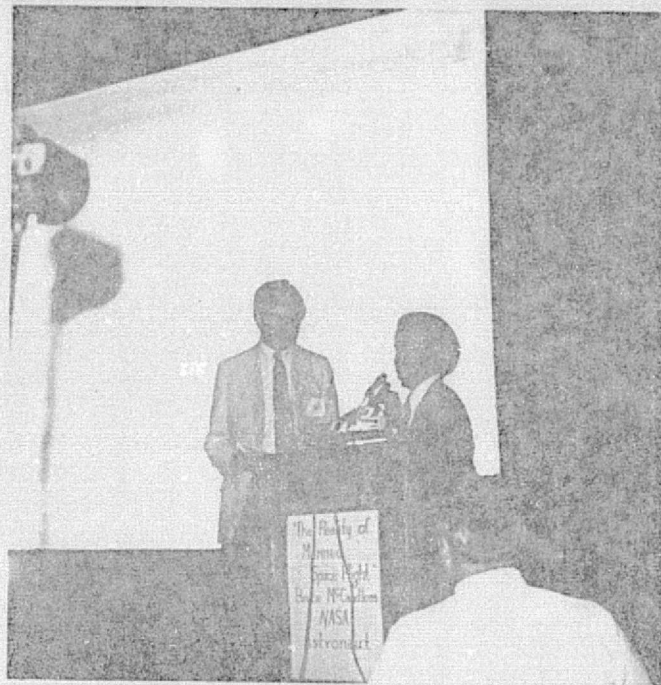
Cast of the play from
High School Talent Search, Inc.

SOUVENIR PHOTOGRAPHS



Ken Jones, NASA/Ames Research Center
at the souvenir photograph booth.

SMALL GROUP PRESENTATIONS



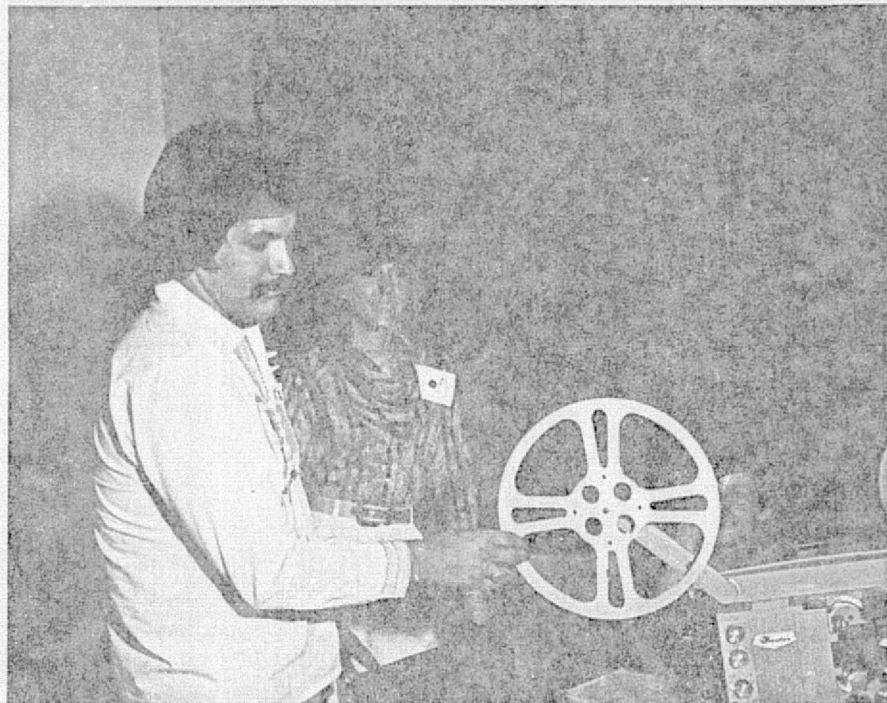
Garth Hull, NASA/Ames Research Center and Roscoe Monroe, Washington Headquarters explaining the procedures for the day.



Calvin Pitts, Aeronautics Lecturer NASA/Ames Research Center, presenting a session entitled, "Me? Aviation? Why Not?."

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SMALL GROUP PRESENTATIONS

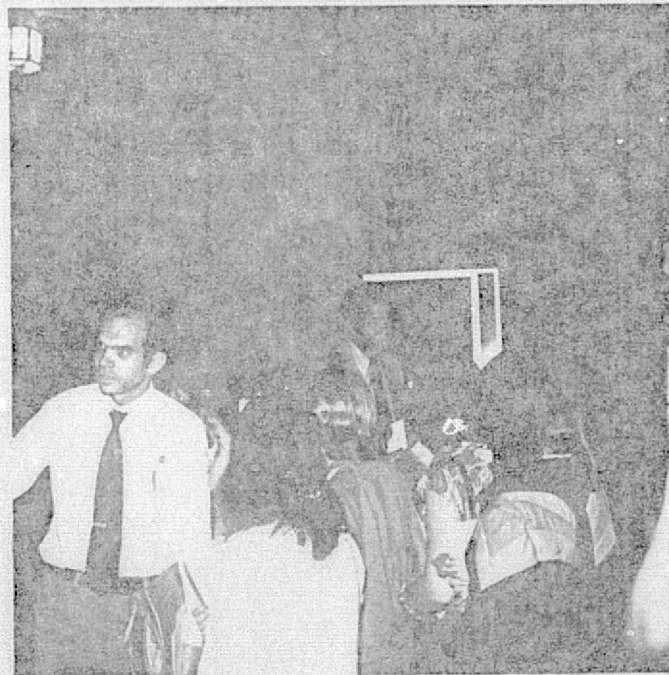


Thomas Nanomantube, Cooperative Education student and Kathy Morehouse, Assistant Personnel Manager, NASA/Ames Research Center, presenting session entitled, "Exploring Careers with NASA."

LARGE GROUP PRESENTERS

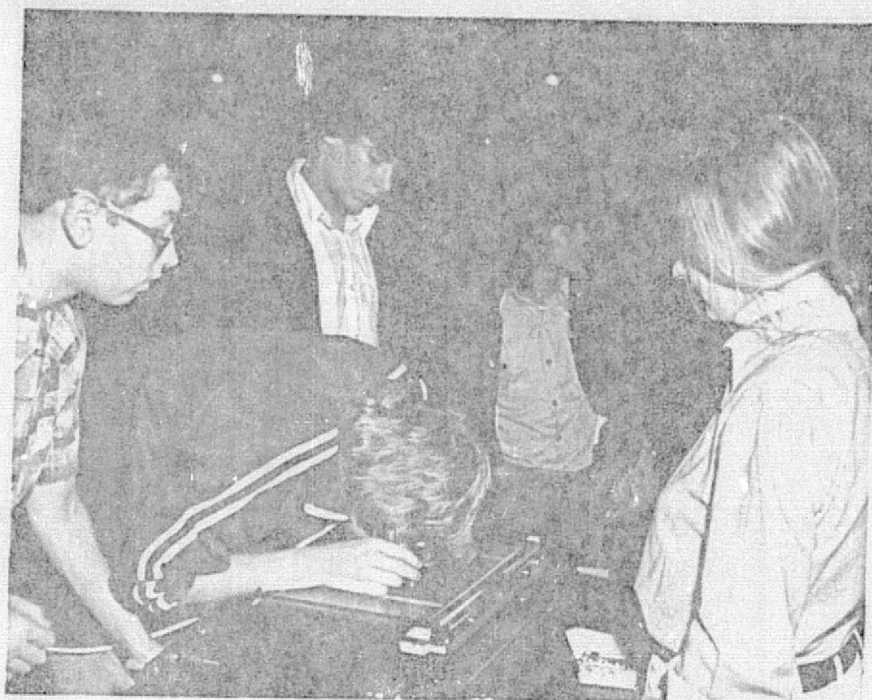


Clarice Lolich, Space Science Lecturer, NASA/Ames Research Center in a discussion with students after her presentation, "Identified Flying Objects-Airborne and Space-borne."

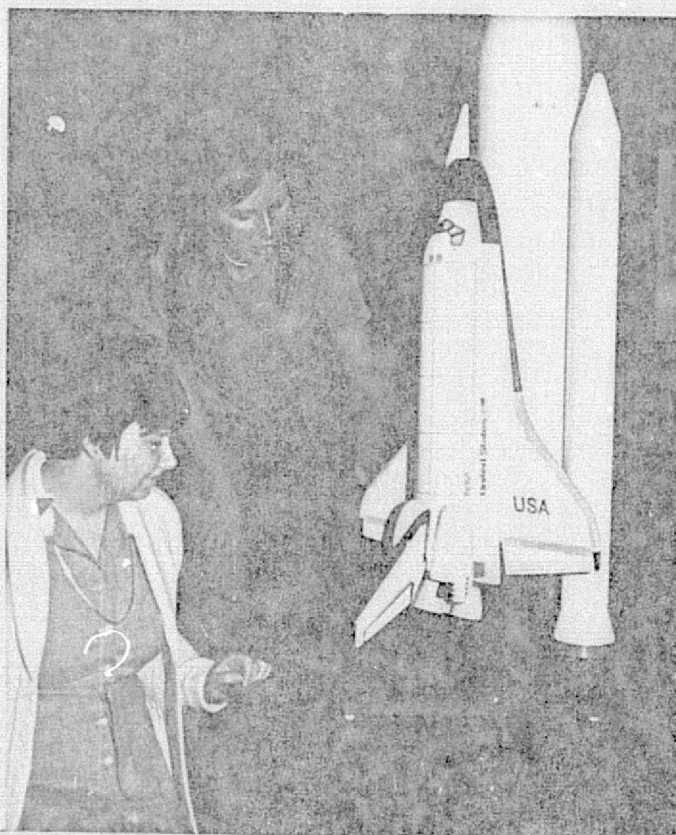


Isaac T. Gilliam, NASA/Dryden Flight Research Center with students after his presentation, "The Space Transportation System."

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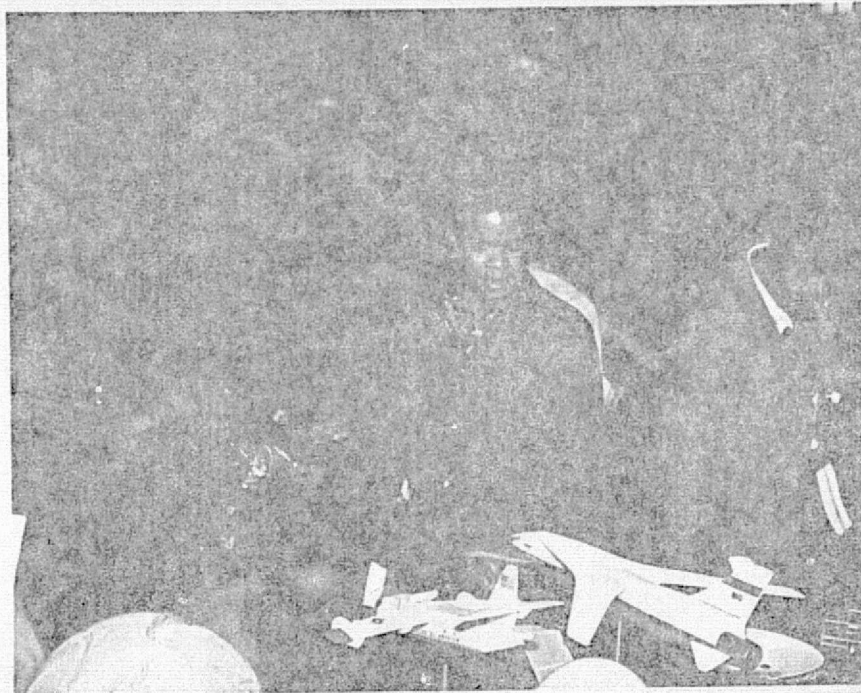


Display by Environmental Remote Sensing
Applications Laboratory, Oregon State
University.



Students viewing the Space Shuttle exhibit
provided by Rockwell International.

EXHIBITS



Students viewing the exhibits.

SYMPOSIUM GUESTS AND PARTICIPANTS

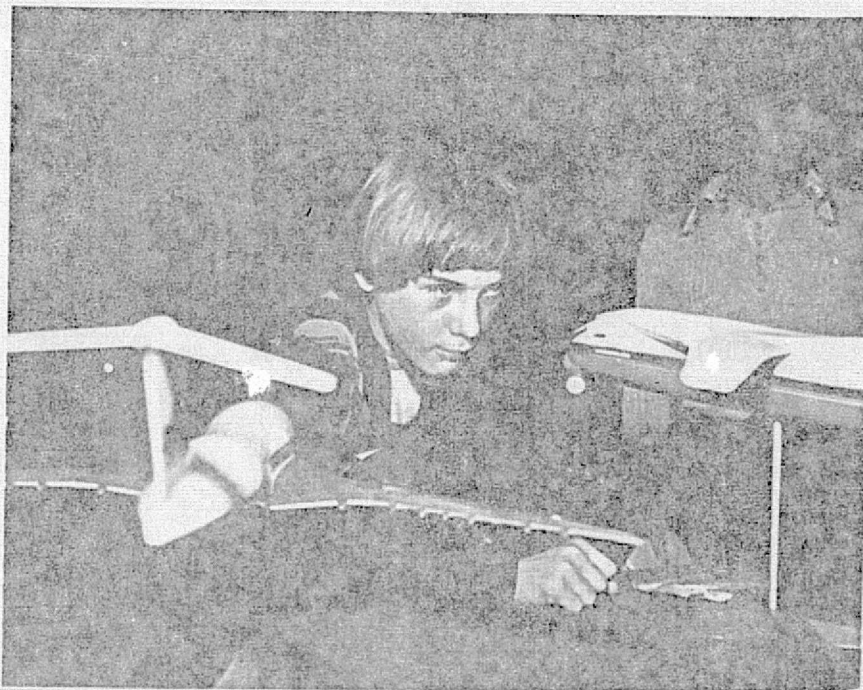


Miriam W. Orzech, Director, Educational Opportunities Program, Oregon State University, in a discussion with Harold Thomas, Manager of Community Interface Programs for the B-1 Division and Charles Toledo, Engineer, of Rockwell International.

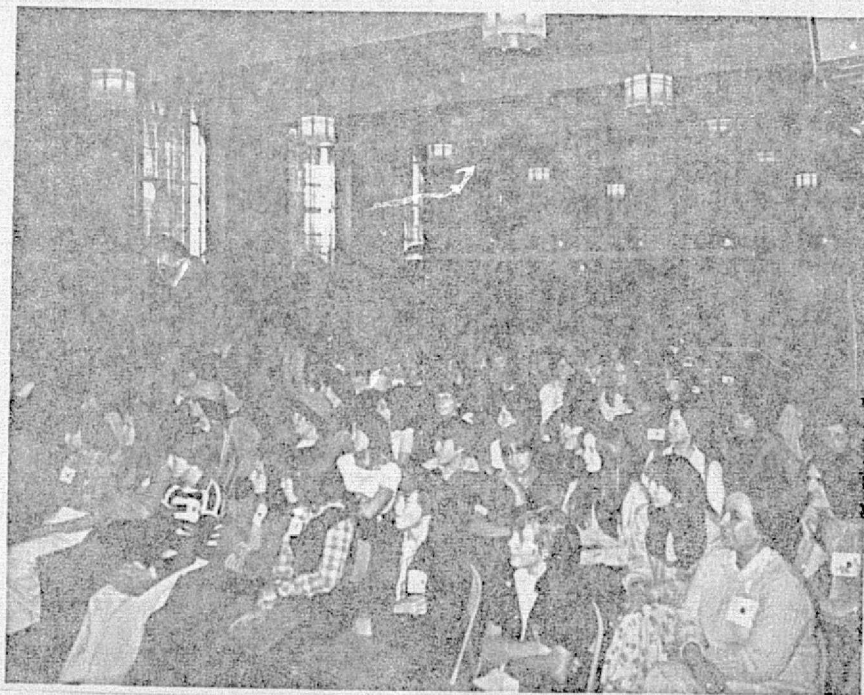


Ray Thiess, Specialist, Science Education, Oregon Dept. of Education with William Horvath Space Science Lecturer, NASA/Ames Research Center.

STUDENTS AND TEACHERS ATTENDING THE SYMPOSIUM



STUDENTS AND TEACHERS ATTENDING THE SYMPOSIUM

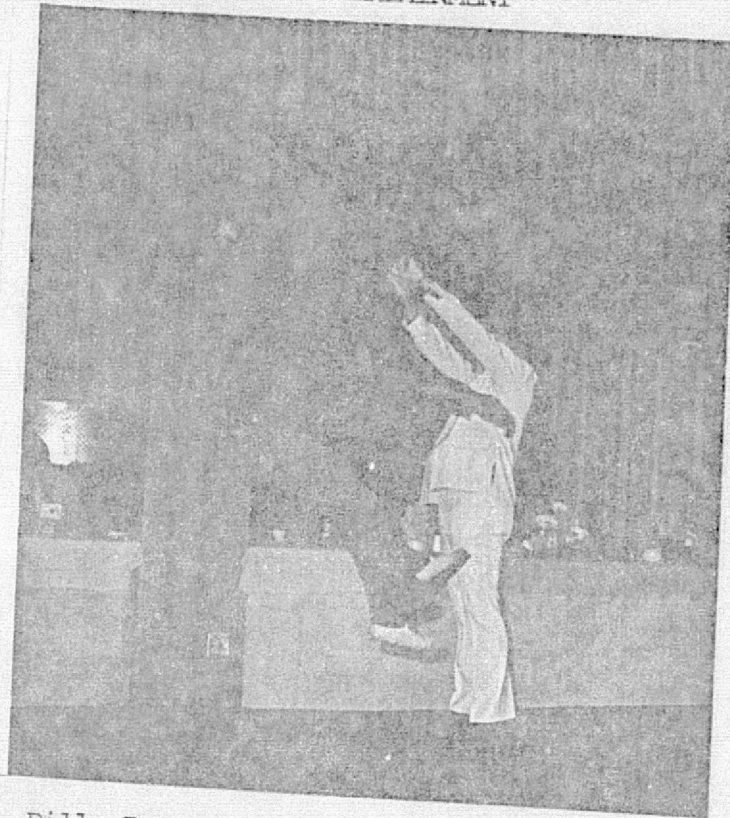


BANQUET



Dr. Hans Mark, Director, NASA/Ames Research Center, featured guest speaker, presents a high-altitude, infrared photograph of the Corvallis area to Stuart E. Knapp, Dean of Undergraduate Studies, Oregon State University.

BANQUET ENTERTAINMENT

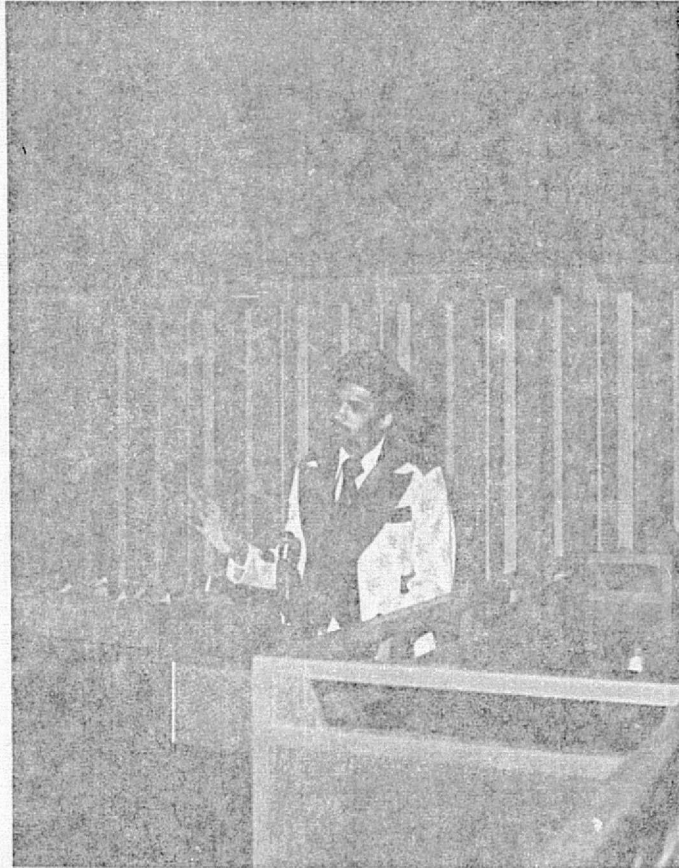


Billy Bester, a student in the Educational Opportunities Program at Oregon State University demonstrating one of the physical contests engaged in by people of Eskimo Indian background. Billy's home is Barrow, Alaska.



MAYA, a Chicano dance group from Independence, Oregon, entertaining banquet guests.

BANQUET ENTERTAINMENT



Rod Lightner, a student in the Educational Opportunities Program at Oregon State University, performing one of his many impersonations of famous people. Rod's home is in Oakland, Calif.

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The "Mother Earth, Father Sky" Symposium was made possible with funds from the National Aeronautics and Space Administration.

A program of this nature requires the participation and perseverance of many people in the planning, delivery, and evaluative stages. We are grateful to all those who were involved.

We wish to acknowledge the contributions of Roscoe Monroe, Symposium Assistant Director, NASA Headquarters; Hans Mark, Director, Ames Research Center; and Willie L. White, Jr., Symposium Director, NASA-Ames Research Center.

Further, we are pleased to recognize the support and assistance at Oregon State University from Stewart Knapp, Dean, Undergraduate Studies; Miriam Orzech, Director, Educational Opportunities Program and the Symposium Board of Advisors; especially the efforts of Ralph Shay, Assistant Dean of Research; and Harold Livingston, Director of Classroom T.V.

Special recognition must go to Diane Clayton, Symposium Coordinator, and Judith Murray, Secretary, whose sustained efforts throughout the weeks of preparation, implementation, and compilation of this final report have been significant.

The success of the "Mother Earth, Father Sky" Symposium can be attributed to the combined efforts of those at the National Aeronautics and Space Administration and Oregon State University, who worked so closely together.